JUNE, 1945

Industrial FINISHING

HNOLOGY DEPT.
JUN 23 1945

TO THE AMERICAN PEOPLE:

Your sons, husbands and brothers who are standing today upon the battlefronts are fighting for more than victory in war. They are fighting for a new world of freedom and peace.

We, upon whom has been placed the responsibility of leading the American forces, appeal to you with all possible earnestness to invest in War Bonds to the fullest extent of your capacity.

Give us not only the needed implements of war, but the assurance and backing of a united people so necessary to hasten the victory and speed the return of your fighting men.

William D. Leahy
Douglas MacArthur
Ernest J. King
Dwight D. Eisenhower
C. W. Nimitz
H. H. Arnold

The above message, from our seven 5-star Generals and Admirals, is presented to the readers of INDUSTRIAL FINISHING through the courtesy of the ADVANCE PAINT CO., Indianapolis, Indiana.

PLASTIC BASE

Paladin

How DO YOU make one finishing department do the work of two?

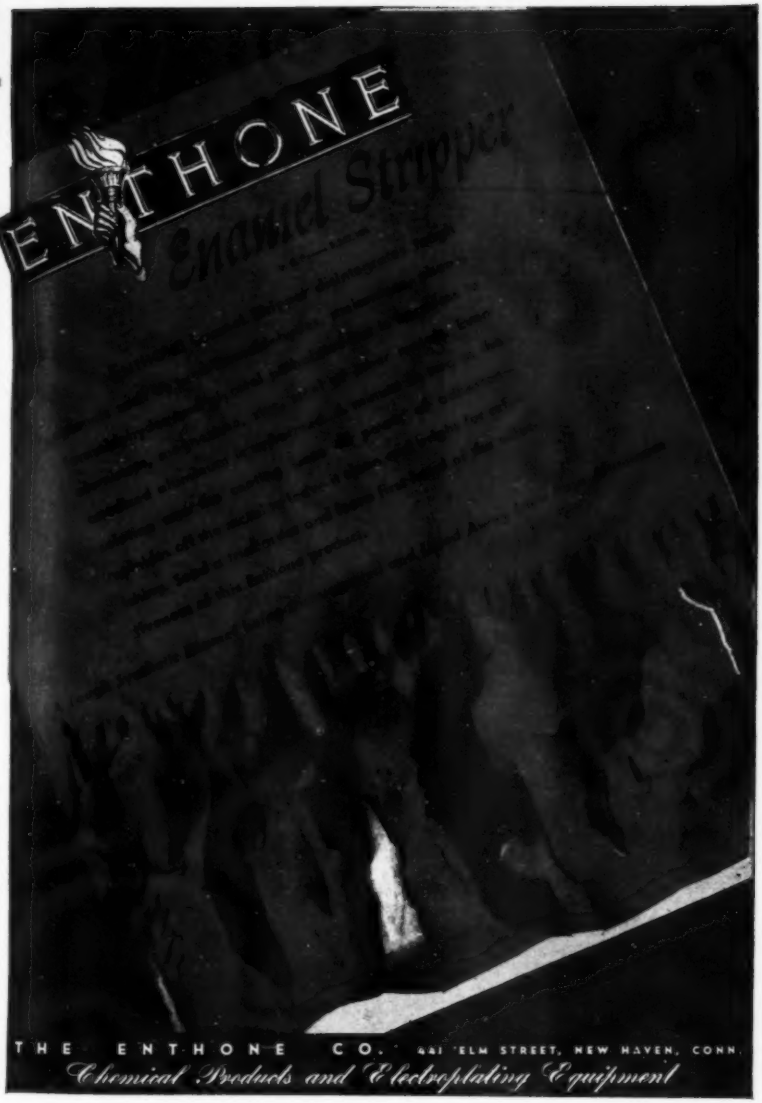
The answer: Roxalin-engineered PALADIN used as a *flash primer.*

This versatile plastic-base primer air dries to re-coat in fifteen minutes . . . heat cures with the finish coat. Here is a system that eliminates the need for separate baking of the prime coat . . . *doubles the output of your finishing room!*

Use this time saving system on cadmium, zinc, brass, aluminum, molded phenolics, copper, steel or glass. PALADIN clings with equal tenacity to all these hard-to-finish materials . . . resists abrasion, salt spray, and humidity. Its excellent flexibility permits fabrication of pre-finished parts. Write to Department 801 for complete technical information.

ROXALIN *Flexible* FINISHES
INCORPORATED
ELIZABETH, N. J. • NEW JERSEY

ONLY ROXALIN MAKES PALADIN


ENTHONE
Enamel Stripper
THE ENTHONE CO. 442 ELM STREET, NEW HAVEN, CONN.
Chemical Products and Electroplating Equipment

IT'S THE FINISH THAT COUNTS!

Give your product the "finishing touch" that attracts the customer's eye . . . and leads to quick sales!

Finish is important. Smooth, uniform surfaces are easily obtained . . . on wood, metal or plastics . . . with the Sterling 1000 Portable Electric Sander. When you lift this sander, you will be pleased with its light weight. As you glide it across the work, you immediately notice its fast, easy, vibrationless action.

Then rub your fingers on the product's surface. No other method will prepare a surface so well for a *perfect* finish! Ask for a demonstration now from your local distributor or write: STERLING TOOL PRODUCTS COMPANY, 365 EAST OHIO ST., CHICAGO 11, ILLINOIS.

CHECK SQUARE IF YOU FINISH (Sand) ON ANY PART OF THESE PRODUCTS . . .

☐ Autos	☐ Blackboards
☐ Trucks	☐ Caskets
☐ Furniture	☐ Misc. Metal Parts
☐ Castings	☐ Misc. Wood Parts
☐ Boats	☐ Misc. Plastic Parts
☐ Aircraft	☐ Misc. Lapping or Polishing

USE THE STERLING SANDER FOR THE BEST FINISHING JOB!

Write for descriptive folder—or, better still, ask your distributor!

STERLING 1000 PORTABLE ELECTRIC SANDER

TWENTY-FIRST YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor E. A. DOSCH, Assoc. Editor

Vol. XXI, No. 8 JUNE, 1945 $2.00 a Year

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Owned and Published by

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Eastern Representative: C. A. Larson, 254 West 31st St., New York 1, N. Y.; Phone Penna. 6-9049

ARMY NAVY

BINKS MANUFACTURING COMPANY

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New York • Detroit • San Francisco • Philadelphia • Pittsburgh • Cleveland • Milwaukee • Boston • Los Angeles • Seattle • St. Louis • Windsor, Ontario, Canada

Anoth
This
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finish
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Another good example of a Binks tailor-made spray painting system. This Binks installation at the Wheary, Incorporated at Racine, Wisconsin, is not as large as some of the Binks systems recently built to finish complete giant bombers, nor is it as small as hundreds of the small-parts finishing set-ups which Binks has designed for other industries. But like the rest, this department is planned for the specific job it must do . . . to finish trunks quickly, perfectly, and economically ...and to provide maximum protection to health and factory. If you are planning to expand or modernize your present finishing department or to build a new one, it will pay you to call in a Binks Engineer for help and counsel. His wide experience with automatic and manual finishing machines, air supply and exhaust systems, material handling . . . and complete set-ups for all types of finishing will save you time and money. No obligation, write for complete information.

Letters from Readers

Infra-Red Baking

We would like to have a reprint of the article on page 31 of February 1945 issue of INDUSTRIAL FINISHING, entitled, "How We Improved Our Infra-Red Baking," signed by Jerome G. Stiegler—N. MFG. CO.

Degreasing Machine

Will you please supply us with the names and addresses of a few manufacturers of modern metal degreasing machines?—M. METALCRAFT CORP.

Information supplied.—ED.

Coating Machines

We would like to have information on machines and equipment for roller coating lumber 1x1½-in., in 45-in. lengths, on four sides. Can you furnish us with the names and addresses of concerns who manufacture either roller coaters or dipping apparatus to do this kind of work?—H. T. CO.

Names of a few manufacturers of roller coating machines are being sent to you by letter. As for dip coating, it would probably be necessary to have a special machine designed and built for the work.—ED.

Convection vs. Radiant Heat Paint Curing Equipment

Starting on page 76, of your March 1945 issue, there is an article entitled, "Convection vs. Radiant Heat Paint Curing Equipment". This article does a fine job of covering the various questions which are constantly asked by prospective customers of oven equipment. We would like permission to have reprints made of this article to use in a sales program. Of course, if you give us permission to reproduce this article, we will give INDUSTRIAL FINISHING and the author a prominent credit line in the title.—A.

We would appreciate your sending 12 reprints of your article entitled, "Convection versus Radiant Heat Paint Curing Equipment", by Rufus J. Fairburn in the March 1945 issue of INDUSTRIAL FINISHING.—S. D. CO.

Much favorable comment has come in regarding this article, and one large manufacturer of finishing materials has ordered several hundred reprints of it.—ED.

More of the Same

We have just received a copy of your publication, April issue, and have noted on page 4 that two of your readers (W. H. and E. E.) are both seeking information on manufacturers of roller coating machines and ovens for producing lacquered strip steel and lacquered coating on plastics.

We are very much interested in securing the exact information supplied to both of the above named companies, as we were about to request the same information of you.—S. V. CORP.

Gold and Silver Vehicle

We are interested in procuring a substance to be mixed with either a gold or silver powder to be sprayed on cellulose acetate images—something that would eliminate the difficulty we encounter in the humid weather of our images sticking together.

Do you know of any concern who might be able to supply us with this powder?—J. C. CO.

We suggest that you use a lacquer vehicle and allow the coating time to dry thoroughly before handling or packing any of the coated images.

In a letter we are submitting names and addresses of manufacturers who, we believe, can supply gold bronze and silver powders.—ED.

Non-Corrosive Finish

We are about to produce a line of forged-steel high pressure valves, and desire to put a non-corrosive finish on the machined parts. Not having had much experience in finishing with any materials other than paint, we are interested in contacting a firm who

(Continued on page 9)

Dolan's

OPALESCENT

Pearl Finishes

FOR
Bric-a-brac
Figurines
Novelties
Cabinets
etc.

A beautiful range of UNUSUAL effects and colors in smooth and "hammered" finishes.

NEW AND DIFFERENT

V. J. DOLAN AND COMPANY, INC.

1830 N. Laramie Ave., Chicago 39, Illinois
Phone BERkshire 0100

Manufacturers of
"UNQUESTIONABLE QUALITY," Industrial Finishes

TORNADO

settles your

DUST

problem

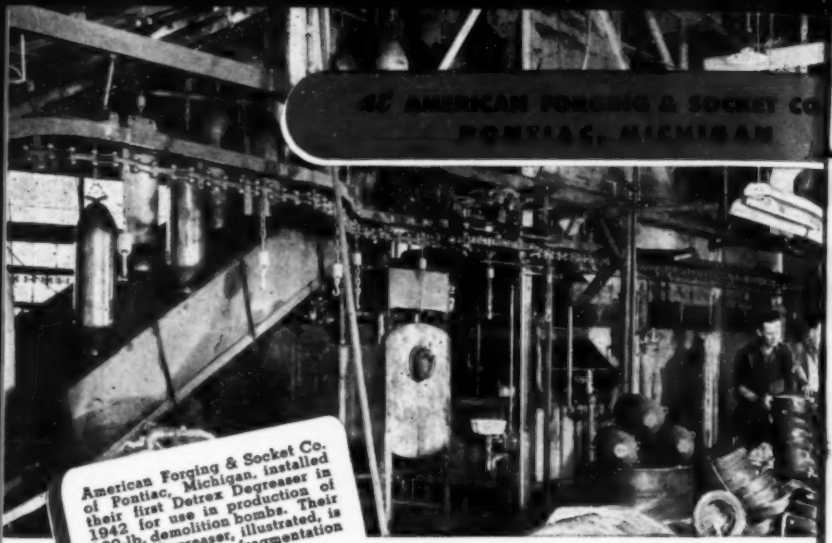
NOTHING means the "finish" of dust—except regular cleaning with the TORNADO which gets rid of it with its powerful suction, large capacity and easy portability. Quickly picks up dust, dirt, flux, etc.

Equipped with attachments for cleaning everything — floors, walls, ceilings, overhead pipes, work tables, etc.—TORNADO makes quick work of clean-ups. Take it to the job!

Write for details and FREE TRIAL Offer

BREUER ELECTRIC MFG. CO.
5094 N. Ravenswood Ave., Chicago 40

TORNADO



American Forging & Socket Co. of Pontiac, Michigan, installed their first Detrex Degreaser in 1942 for use in production of 100-lb. demolition bombs. Their second Degreaser, illustrated, is handling 260-lb. fragmentation bombs.

Detrex DEGREASER CAN BE QUICKLY RECONVERTED

THIS company's peacetime products include a variety of stampings made up into assemblies for the automotive industries. When manufacture of such parts is resumed, their present Detrex Degreasers will fit right into the production picture. Parts to be cleaned will be loaded into baskets carried by the same hooks on the same conveyors that are now carrying bomb forgings, and the only alteration required will be a possible change in the conveyor speed.

In the same way, ALL Detrex Degreasers are readily adaptable to changing production needs—whether for war or peace—usually with little or no alteration.

In speed, thoroughness, economy—in adaptability, too —Detrex is your best buy in industrial metal cleaning.

BUY MORE BONDS

DETREX *Corporation*

13019 HILLVIEW AVE.

DETROIT 27 • MICHIGAN

Solvent Degreasers • Metal Parts Washers • Processing Equipment • Industrial Cleaning Chemicals

has a process of oxidizing steel surfaces. We will appreciate anything which you could do to help us along this line.—H. Q. Co.

We are giving you the names and addresses of a few concerns that manufacture or supply chemicals for producing a black oxide rustproof finish on steel.—ED.

Infra-Red Paint Drying With Gas

We have read with interest the article in the April issue entitled, "Infra-Red Paint Drying With Gas", by William H. Tesmer of the Burdett Mfg. Co. We would very much like to know more about this process, as we are contemplating the installation of a new baking system in our plant, and any information which you can give us as to how to obtain details will be very much appreciated.—H.

Sprayed Plated Finish

Please let us know who manufactures the "Sprayed Plated Finish" which, we hear, is so remarkable.—J. S.

This was advertised several times in INDUSTRIAL FINISHING. In a letter we are giving you the name and address of the manufacturer.—ED.

Fire-Resisting Paint

Referring to your article, "Fire-Resisting Paint", in January 1943 issue, can you give me any information as to where I may purchase the above fire-resistant paint, and if so, the name of the manufacturer?—W.

We are sending you names and addresses of a few concerns which, we believe, manufacture and sell such materials.—ED.

Painting Metal Products

Up to now we have turned over the painting of our metal products to others. We would like information as to the least expensive, and quickest method to apply paint or lacquers to small metal items, such as toys or novelties made of 22-gauge low-carbon steel sheets, and low-carbon cold-rolled bars.

Coatings that can be applied cold, and without baking are preferred. Suggestions on how to apply, as spray or dip, from a constantly mov-

(Continued on page 112)

SAFEGUARD YOUR SPRAY BOOTHS

Apply Wyandotte Spray Booth Coating *first* for quicker removal later of layers of inflammable paint. It takes only a thin coating to make cleaning easier, speedier, more economical. Write Wyandotte Chemicals Corporation, J. B. Ford Division, Wyandotte, Michigan, for full details!

Wyandotte F-100* will help cut your floor-cleaning costs. Even heavy soil disappears when this remarkable compound gets to work!

*Registered Trademark

Danger! RUST at work

Rust works silently and often unseen—but it's coating you money and man-hours as long as there's *any* of it in your plant. You can STOP IT! Tectyl—easily applied by spraying, dipping, brushing, or flushing—*seals* metal surfaces against any possibility of corrosion. Tectyl is economical to use, protects for as long as *two years*, and can be removed quickly and cleanly with kerosene.

There is a

TECTYL

product for EVERY rust problem

VALVOLINE OIL COMPANY
431 Main St., Dept. 24F, Cinn. 2, Ohio
Refinery at Butler, Pennsylvania
New York-Atlanta-Detroit-Chicago
Los Angeles-Vancouver
Washington, D. C.

Celanese* Chemicals

In giving transfusions of blood plasma it is vitally important that the dispensing needle be free of contamination. To assure this, the instruments are sterilized *after* packaging. The material of the container is treated with a nitrocellulose heat-sealing coating plasticized with Celluflex* 179† which withstands sterilizing temperatures and acts as a sealer until the needle is removed for use.

†*Celluflex 179: petroleum base organic phosphate plasticizer.*

CELANESE CORPORATION OF AMERICA

Research that typifies the progress of Synthetics

THE LARGE-SCALE adaptation of laboratory synthesis to practical, highly specialized applications has greatly expanded industry's chemical horizons.

In hundreds of ways chemical engineers have gained freedom from limitations once imposed by cost or scarcity of chemical source materials.

In this progress, Celanese research—its background, its accomplishments, its basic viewpoint—has been an active factor. True to the nature of synthetics, Celanese research has created from low-cost, widely available bases, compounds exactly suited to the complex needs of many advanced processes.

Custom-built to users' specifications—and that is the way Celanese chemists prefer to work—these precision materials achieve difficult objectives and without burdensome compromises.

For instance, in supplying desirable operating qualities in plasticizers, lubricant additives, hydraulic fluids and emulsions—such as improvements in miscibility, viscosity, specific gravity, solubility, stability—Celanese research satisfies parallel needs such as reduction of flammability, corrosion, oxidation.

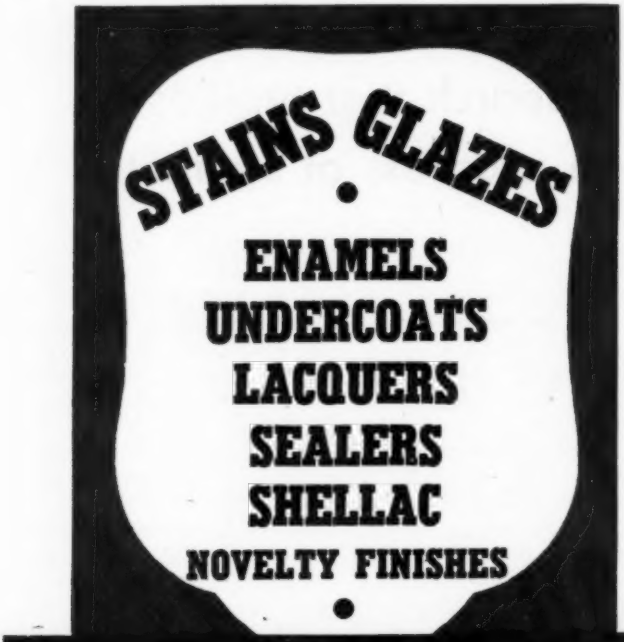
Insulation for modern electrical cables provides a case in point. Celanese plasticizers not only contribute added qualities of toughness and flexibility, but higher dielectric strength and greater resistance to oxidation as well.

This appreciation of interrelated factors in chemical problems, and this faith in the infinite potentials of synthetics, are shared by the entire Celanese chemical staff. Inquiries in terms of customer's specific objectives are particularly welcomed. Celanese Chemical Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

PLASTICIZERS
ORGANIC PHOSPHATES
LUBRICANT ADDITIVES
INTERMEDIATES
DYE-STUFFS

*Reg. U. S. Pat. Off.

TEXTILES • PLASTICS • CHEMICALS



IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

How to Avoid Finishing Bottlenecks Through **DESPATCH ENGINEERING**

A Complete Service

Why not be *sure* of finishing results by having experienced engineering specialists supply your *complete** system under ONE responsibility? This is the valuable service offered by DESPATCH Engineers.

You're protected against costly bottlenecks caused by inexperienced coordination of various finishing system elements. And you are assured of correct equipment, properly planned and installed to give you *all* the results you want.

*Or separate items.

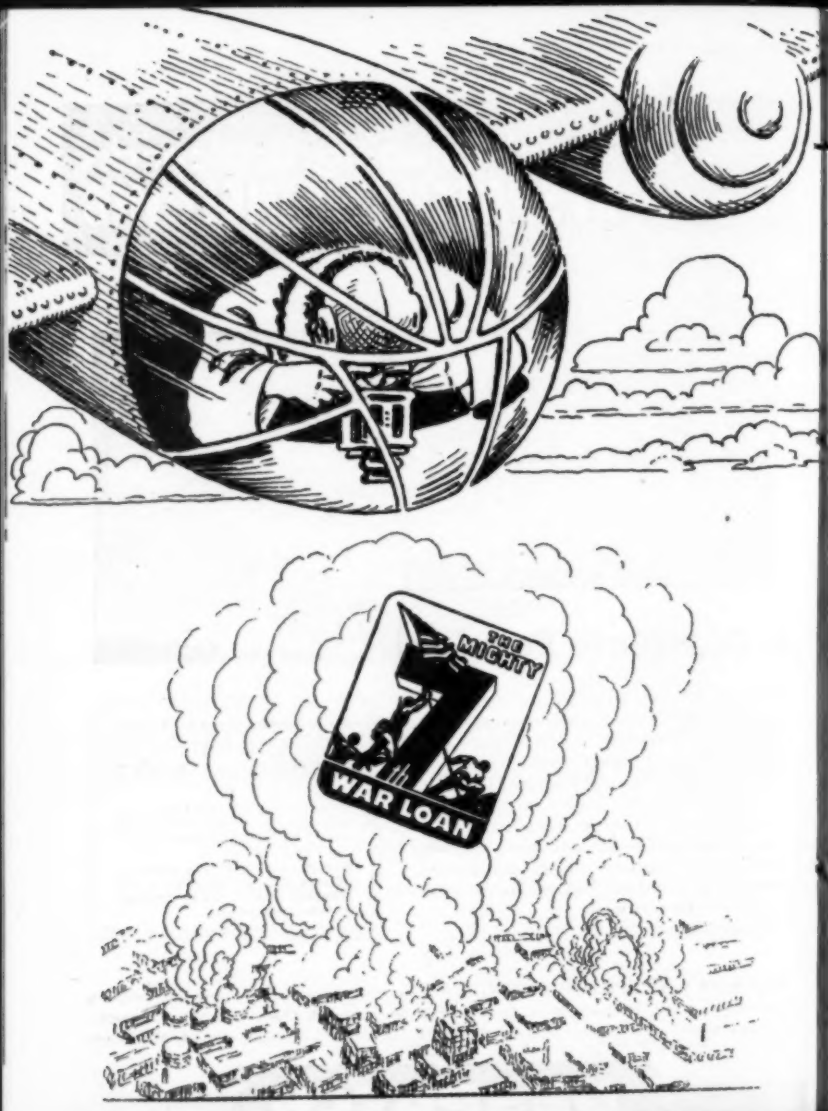
Take advantage of this COMPLETE ENGINEERING SERVICE

Despatch engineering specialists will plan, select, coordinate and install in your finishing department such items as:

OVENS • BONDERIZERS • DRYERS CONVEYORS • WASHERS • AIR CONDITIONERS • SPRAY BOOTHS and allied equipment

ASK FOR A DESPATCH ENGINEER to survey your plant and plan the Finishing System you need. No obligation. *Send inquiries to:* Despatch Oven Co., 221 N. LaSalle, Chicago 1, Ill., or to Despatch Oven Co., 619 8th St. S.E., Minneapolis 14, Minnesota

DESPATCH
OVEN COMPANY MINNEAPOLIS 14 MINNESOTA, U.S.A.



THE LILLY COMPANY
HIGH POINT, N. C.

Where EXPERIENCE *Counts* • • •

The success or failure of a bombing mission rests heavily on the bombardier's accuracy and faultless timing in hitting the target. Experience helps to develop his accuracy toward perfection.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

EXPERIENCE ALSO COUNTS in making finishing materials—and we have that experience. We have been making finishes for 80 years, (since 1865) . . . and more important, we have been making specific finishes for specific products and purposes for 24 years (since 1921). Fourteen years ago we adopted the slogan "With the right finish—you'll finish right." This slogan applies in war or peace, in good times or bad . . . and we have the experience and knowledge to produce the "right" finish for you.

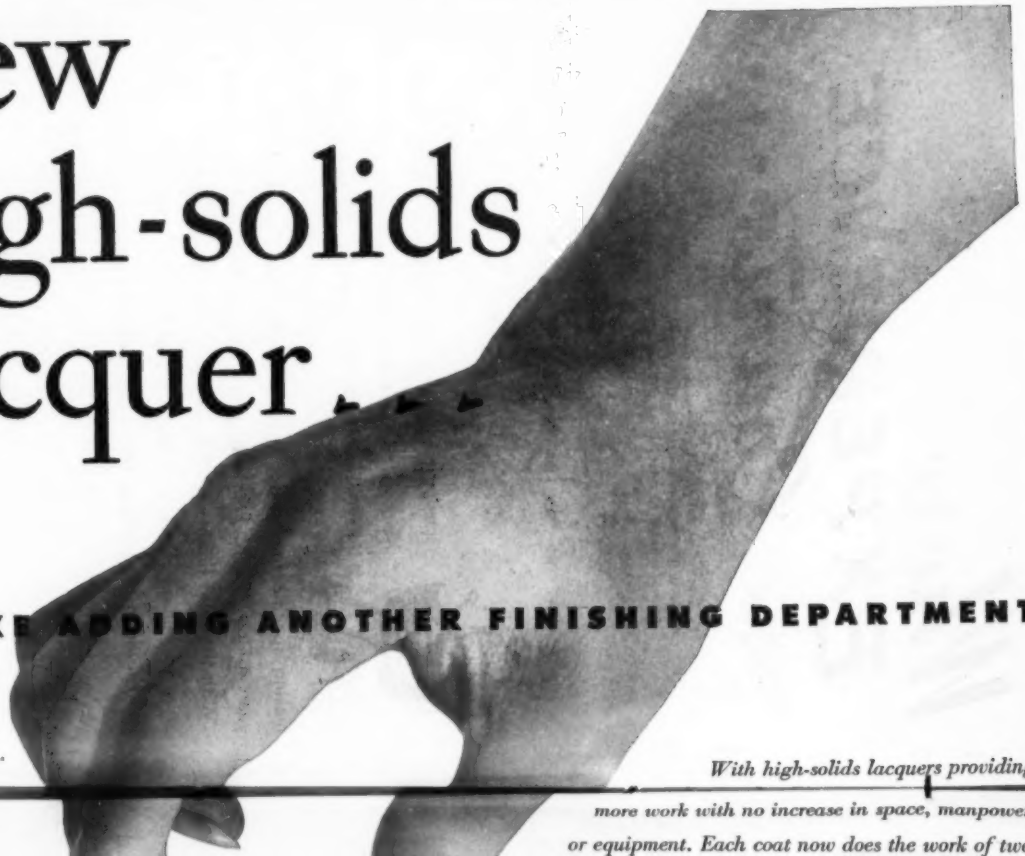
★

LILLY VARNISH COMPANY

Indianapolis, Indiana

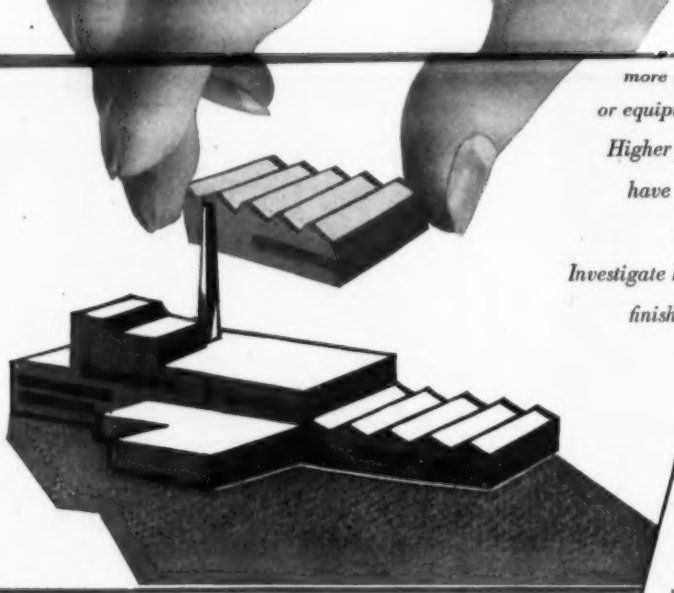
THE LILLY COMPANY, High Point, North Carolina

New high-solids lacquer . . .



» LIKE ADDING ANOTHER FINISHING DEPARTMENT

With high-solids lacquers providing more work with no increase in space, manpower, or equipment. Each coat now does the work of two!



With high-solids lacquers providing more work with no increase in space, manpower, or equipment. Each coat now does the work of two! Higher percentages of lower-viscosity nitrocellulose have made this possible. Increased thickness and protection are noticeable only after drying. Investigate high-solids lacquers now . . . for high-speed finishing of metal, wood, fabric, rubber, leather, paper, plastics . . . and see what time and money you can save.

ASK YOUR LACQUER SUPPLIER for complete details and application data on these new time-and-money-saving lacquers, as they become available. Hercules does not make high-solids lacquers, but concentrates on the production of the highest quality nitrocellulose from which they are made.

CL-54A

HERCULES-

Cellulose Products Department
HERCULES POWDER COMPANY
INCORPORATED
928 Market St., Wilmington 99, Del.

Years of close co-operation between The White Motor Company production department and Ferbert-Schorndorfer paint technicians established the basic fact that F-S finishes possessed an adaptability to wartime needs which enabled them to withstand the abuses to which they have been subjected in combat zones. And now, as White's production line turns out both army and civilian trucks, F-S finishes will provide equally durable service to meet peacetime needs. Continued use by White and other leading users is proof of the satisfaction F-S metal finishes have been giving since 1922.

THE FERBERT-SCHORNDORFER COMPANY

CLEVELAND F-S OHIO

An American-Marietta Company Subsidiary

HERE IT IS — AT WORK!

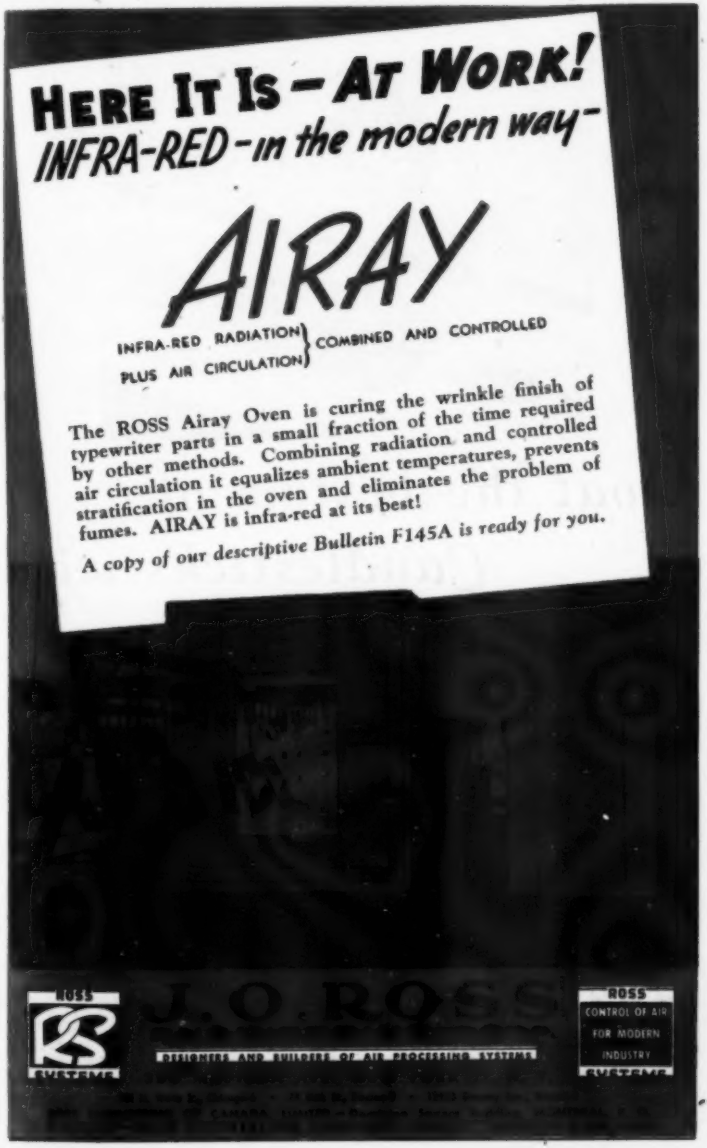
INFRA-RED - in the modern way -

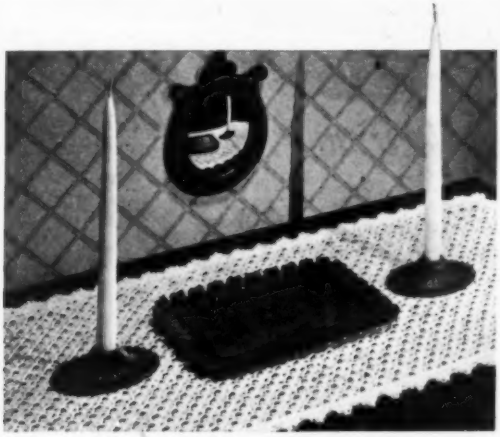
AIRAY

INFRA-RED RADIATION } COMBINED AND CONTROLLED
PLUS AIR CIRCULATION }

The ROSS Airay Oven is curing the wrinkle finish of typewriter parts in a small fraction of the time required by other methods. Combining radiation and controlled air circulation it equalizes ambient temperatures, prevents stratification in the oven and eliminates the problem of fumes. AIRAY is infra-red at its best!

A copy of our descriptive Bulletin F145A is ready for you.





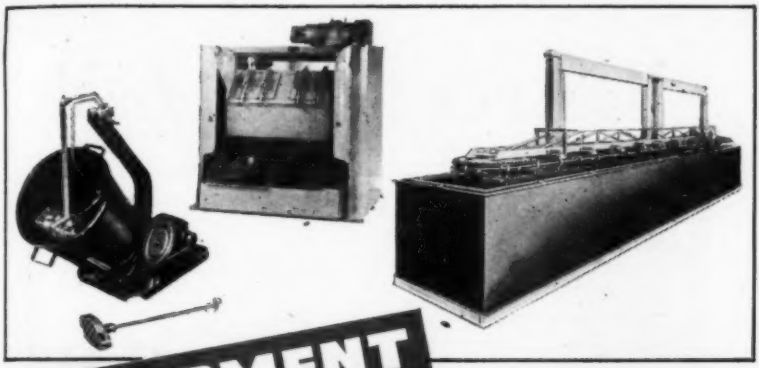
Coat the bottom of Candlesticks with

Cellusuede FLOCK

A coating of Cellusuede Flock on the bottoms of candlesticks not only lends the enrichment of brilliant color and a soft velvety "feel" to the bases, but provides the surface on which the candlesticks are placed with ample protection from scratching or marring. A trial application will show you how easily this versatile material may be handled. Both Cotton and Rayon Flock are available immediately in a variety of colors.

Write today for FREE Booklet and Prices

CP Cellusuede Products, Inc.
ROCKFORD, ILLINOIS



EQUIPMENT *and* COMPOUNDS

FOR METAL CLEANING

Don't let production slack . . . after Total Victory, post-war products must be manufactured without conversion cleaning problems.

MAC DERMID INCORPORATED compounds are individually formulated for faster, more positive cleaning.

- **ANODEX** The original Reverse Current ANODEX Process and individually formulated compounds developed in special variations for fast—positive cleaning of ferrous metals.
- **METEX** Special variations of METEX compounds are now available for burnishing, stripping, and cleaning under all modern conditions. Write for free data sheets on the compound best suited to your need.

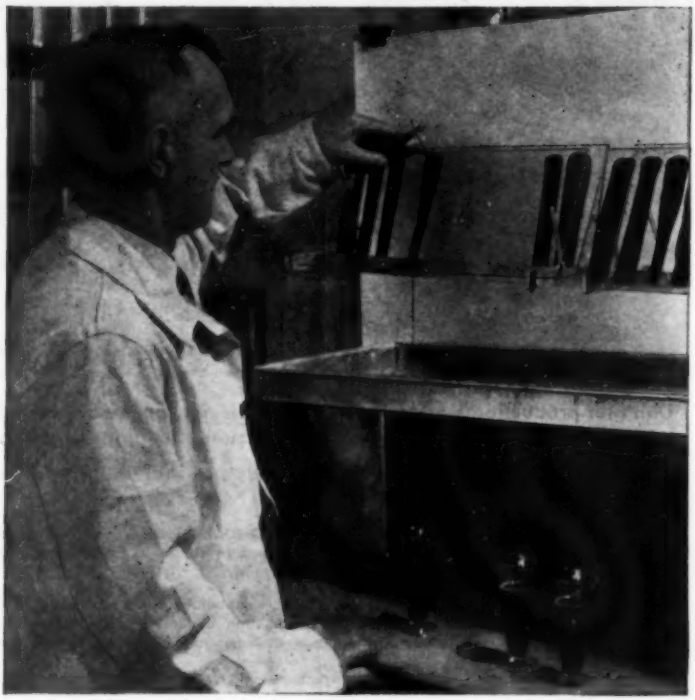
Compounds and Equipment for Metal Finishing

MAC DERMID
INCORPORATED
WATERBURY 88, CONNECTICUT

WRITE ONE OF THESE SERVICE ORGANIZATIONS FOR FREE DEMONSTRATION

NEW YORK	DETROIT	CHICAGO	CLEVELAND	ST. LOUIS	TORONTO—CAN.
Udylite Corp. (L. I. City)	Udylite Corp. Wagner Bros.	Udylite Corp. Geo. A. Stutz Mfg. Co.	Udylite Corp. McGean Chem. Co.	Lebolo, Incorporated	Clark Industrial Supplies Co.

Measuring up to Rigid



In Pittsburgh's Laboratories, a practical drying test is conducted on oils, varnish and synthetic resin vehicles, comparing the material directly to an established standard. The material and standard are thinned to the proper body and driers added if called for by the testing procedure. The prepared samples are flowed out on a clean glass panel. The "dry to dust free", "dry to handle" and "dry hard" periods are all observed. The flow, cleanliness and clarity of the films are also observed during this test.

Drying Standards!

Still Another Example of Pittsburgh's Ceaseless Vigilance to Produce Industrial Finishes of *Uniform High Quality*

CONTROL TESTING is a "must" in Pittsburgh's great Analytical Laboratories. Production batches of Industrial Finishes are critically compared with established standards, for specific qualities of workability, appearance and serviceability. Nothing is left to guesswork.

Raw materials, such as pigments, oils, resins, solvents and thinners, are constantly under "microscopic" inspection. Electronic instruments, ultra violet ray apparatus, baking and freezing cabinets, accelerated weather wheels, salt spray cabinets, blistering equipment—all are employed for testing and checking color permanency, texture, drying and other values.

All this to make certain that finished products bearing the Pittsburgh label measure up to Pittsburgh's rigid standards of uniformity and durability. And to assure YOU of Industrial Finishes for your purpose that are unsurpassed for their hiding, spreading and wearing qualities.

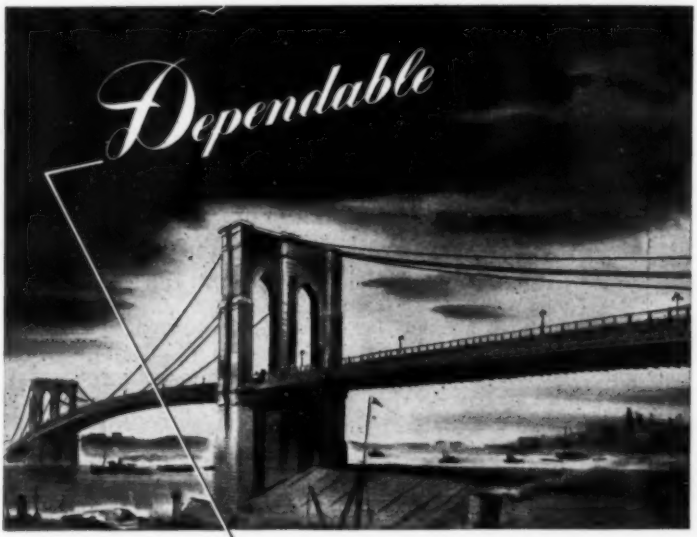
Pittsburgh Paint Flies with the "MARS"

This gigantic craft of the U. S. Navy needs more than 100 gallons of Pittsburgh Zinc Chromate Primer to protect her metal parts against the corrosive effects of salt air and spray. Her fabric surfaces are covered with 80 gallons of Pittsburgh Nitrate Dopes—clear dope to tighten the fabric and pigmented dope for final color coats. Pittsburgh makes a wide variety of Aircraft Finishes for every purpose.

PITTSBURGH PLATE GLASS COMPANY, Industrial Paint Division, Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Division, Detroit, Mich. The Thresher Varnish Co., Dayton, O.

PITTSBURGH *Industrial* **FINISHES**

PITTSBURGH STANDS FOR QUALITY PAINT AND GLASS



IS THE WORD FOR

ARCO

PRODUCTION FINISHES

In its 62 years of service, uncounted millions have crossed the Brooklyn Bridge... a dependable servant of a great metropolis and its people. Arco Production Finishes are a dependable servant of industry, solving finishing problems, and keeping them solved. When you specify Arco, you specify dependability.

Paints for Industry THE ARCO CO.

CLEVELAND, OHIO · LOS ANGELES, CALIF.

Many Mahon Finishing Systems are so synchronized that the various finishing operations progressively START or STOP with a single control.

THE *Start* OF A NEW ERA IN AUTOMATIC FINISHING!

In wartime production, utility and durability of the finish have been the prime essentials. Future finishing operations, however, must take into consideration, also, the all-important factor of APPEARANCE. And like other production operations, finishing must be accomplished at the lowest possible cost—if predetermined selling prices are to be met.

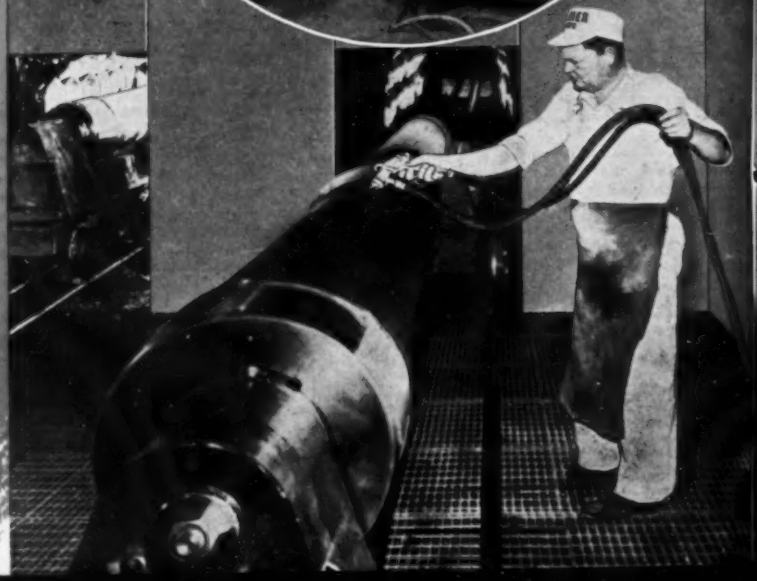
Many concerns, in many different industries, have found Mahon Complete Finishing Systems the practical solution—fully mechanized, AUTOMATIC, coordinated systems that incorporate the newer and better features of faster, finer, safer, MORE ECONOMICAL finishing. You, likewise are invited to utilize the specialized knowledge of Mahon engineers.

Address Inquiries to INDUSTRIAL EQUIPMENT DIVISION

THE R. C. MAHON COMPANY
DETROIT 11 CHICAGO 4

Manufacturers of Metal Cleaning Machines • Rust Proofing Machines • Hydro-Filter Spray Booths • Ovens of All Types • Filtered Air Supply Units • Hydro-Foam Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems

Paint Conditioning for Gun



for Guns that shoot Flares and Flak

. . . with DeVilbiss Spray Systems

THREE war-winning guns are shown in these production scenes: Parachute Flare Pistols—Stratosphere Anti-Aircraft Guns—and DeVilbiss Spray Guns that give them paint protection at war speed.

The top view shows a DeVilbiss Spray System at Columbia Appliance Corp. giving those life-saving pistols a rugged, protective finish. That modern DeVilbiss System at the lower left is the Chain Belt Company's setup for high speed painting of tube and breech blocks of the highest-firing anti-aircraft gun. These giant parts, mounted on a carriage, roll through the spray booth on a narrow gauge track.

Two important phases of DeVilbiss Spray Engineering are illustrated here: First, the way many peacetime DeVilbiss Systems have been efficiently adapted for hurry-up war work—and second, how easily DeVilbiss Systems meet requirements for finishing products of all sizes and shapes.

In these and other ways, you'll benefit by relying on DeVilbiss Engineers to help in your war and postwar finishing problems.

THE DEVILBISS COMPANY · TOLEDO 1, OHIO
Canadian Plant: WINDSOR, ONTARIO

DE VILBISS
Spray Systems

SPRAY EQUIPMENT · EXHAUST SYSTEMS
AIR COMPRESSORS · HOSE AND CONNECTIONS

Resistance to Salt Spray

NUBELITE

Outstanding in its resistance to the corrosive effect of salt laden humidity, Nubelite is a synthetic enamel of superb quality. This famous white product finish also has high resistance to grease vapors, sunlight, fruit acids, brittleness and loss of lustre.

A MODERN PLASTIC PRODUCT

Nubelite is a carefully blended combination of liquid plastic which provides a protective surface of unequaled beauty, toughness and durability. It is an ideal high heat finish for stoves, metal cabinets, refrigerators and household appliances.

TAILORED TO YOUR NEEDS

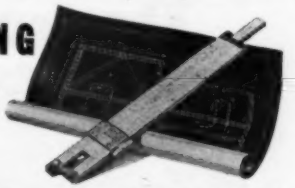
Backed by eleven years of varied use, Nubelite is a Time-Tested product of Glidden research. If your product presents special finishing problems, Glidden paint engineers will be glad to help you find a "tailor-made" answer. Just drop us a line.

THE GLIDDEN COMPANY • Cleveland 2, Ohio

TIME-TESTED

GLIDDEN • *Pacemaker in Paints*

OVEN ENGINEERING NEWS



When Post-War Planning Stops And Post-War DOING Starts . . .

☐ **Lacquering of Insulated Wire and Cable**—A 16-page article on cable lacquering techniques and equipment. Illustrated with drawings.

☐ **Continuous Finishing Set-up Facilitates Production of Steel Landing Mats**—A magazine reprint describing production and automatic finishing of portable aircraft landing mat sections.

☐ **Three-Zone Oven for Paint Finishes of Metal Furniture**—Reprint describing an interesting automatic finishing installation.

☐ **High Speed Finishing of Aircraft Landing Mats**—This reprint gives a different treatment of the landing mat job mentioned above.

You'll Find This Oven Engineering Data Even More Useful Than It Is Today

In tomorrow's highly competitive market, an efficient oven materials handling system may make the difference between profit and loss. If you are planning any operation which involves oven processing, you'll want these engineering books, technical articles and reprints. All are free; just check the ones you want, and send us this page.

☐ ***Blueprint for Industry, Part II***—An 18-page brochure on high-production ovens for many batch and continuous heating processes. In addition to detailed descriptions and engineering details of many efficient oven materials handling systems, it contains two pages of engineering data on gases and other materials, along with fan engineering data.

CURRENT DATA

Our present series of advertisements, "Oven Engineering News" is also available in reprint form; why not send for it?

(This is No. 10 of a series. Reprints of previous advertisements will be sent free upon request.)

ENGINEERING VERSATILITY

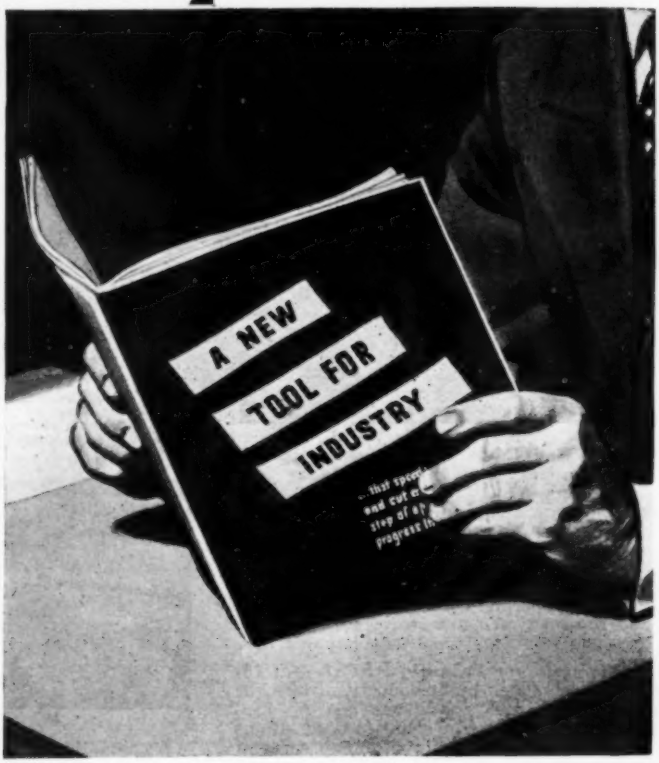
THE INDUSTRIAL *Oven Engineering* COMPANY

11621 DETROIT AVE., CLEVELAND 2, OHIO

Engineering Representatives in Principal Industrial Areas

* ASSOCIATED COMPANY: JAMES DAY MACHINERY LTD., LONDON, W. 1, ENGLAND *

Do you know...?



Q. The title of this widely discussed booklet refers to:

☐ Electricity ☐ Tape ☐ New-type wrench

A. The booklet shown above tells the fascinating story of Permacel pressure-sensitive tapes—how they help in countless ways to speed production and cut costs all along the production line.

This booklet offers, for the first time in print, a compilation of many tape applications developed and proved in war production—in handling of raw materials, assembly of parts, actual production, product finishing, packaging and shipping, and in various maintenance operations. Write for your free copy of this booklet today. Address: Dep't I F-14, Industrial Tape Corporation, New Brunswick, N. J.

No. 14 in a series

Q. Lining of this handbag is:
☐ Cloth ☐ Leather ☐ Coconut fibre

A. Cloth. After the war, manufacture of handbags will be greatly speeded by use of Permacel cloth tape (Jonflex). Operator assembles sections of "liners," sticks them together with Permacel, then puts the bag through the sewing machine as a unit.

Q. Maximum speed of a U. S. torpedo is:
☐ 10 knots ☐ 20 knots ☐ 30 knots

A. Approximately 30 knots. To protect the vital threads and keys on torpedoes during manufacture and in transit, Permacel's companion, Texcel cellophane tape, is often used. This quick-sticking, transparent tape (also made in colors) is also a favorite in offices and stores.

Q. Tape on this store window is part of:
☐ Insulation ☐ Decorative scheme
☐ Burglar alarm system

A. Burglar alarm system. A special Permacel metal tape (Metacel) is used for this purpose. Also used to seal fuse chambers in hand grenades, this tape will find many other interesting uses after the war—wherever a combination conductor-and-sealer is needed.

IMPORTANT: *Our research laboratories are at your disposal for development of special tapes to meet war and postwar needs.*

Permacel Industrial Tapes

INDUSTRIAL TAPE CORPORATION

New Brunswick, N. J.

Makers of Texcel Tape

"PERMACEL" REG. U. S. PAT. OFF.

HORN *suggests—*

KERATYN

NEW • LOW BAKE • QUICK BAKE

PORCELAIN LIKE FINISH
NO DISCOLORATION
CLEAR AND IN ANY COLOR
ANY DEGREE OF GLOSS

A. C. HORN COMPANY
PRODUCTS FINISHING DIVISION
LONG ISLAND CITY 1, NEW YORK
CHICAGO • HOUSTON • LOS ANGELES

two WAYS TO "FINISH THE JOB" FASTER!

1. Buy EXTRA War Bonds 2. Airpaint with Paasche

1—FASTER—uniform, complete coverage at top speed.

2—Easier-Handling due to light weight, perfect balance, comfortable grip.

3—Finer Atomization under complete control.

4—Sturdier construction.

5—Most adaptable, due to Multiple-heads.

Fastest method of applying finishing materials is one of the chief reasons this Paasche "CU" Airbrush has the preference in factories, shipyards, on maintenance work, etc.

LIGHTNING-FAST!

PRESSURE FEED

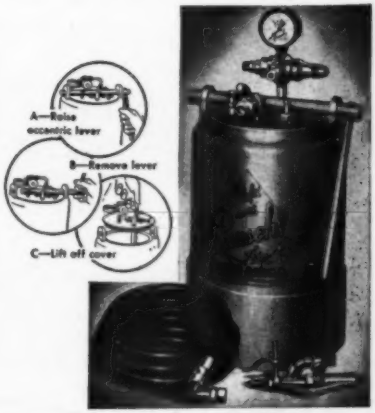
MATERIAL TANK

with the

"CLAMPTIGHT" COVER

Off in 5 Seconds

Save hours in finishing material handling. No bolts or nuts; no wrench needed. Single lever loosens "Clamptight" Cover, or tightens it securely for instant use. Combined with Paasche Airbrush, makes complete high production Airpainting Unit.



For details on the full line of Paasche Pressure Feed Tanks, Compressors, Air Regulators, and Manual or Automatic Airpainting Equipment, write for complete Paasche catalog.

PAASCHE AIRBRUSH COMPANY
1917 Diversey Parkway Chicago 14, Illinois

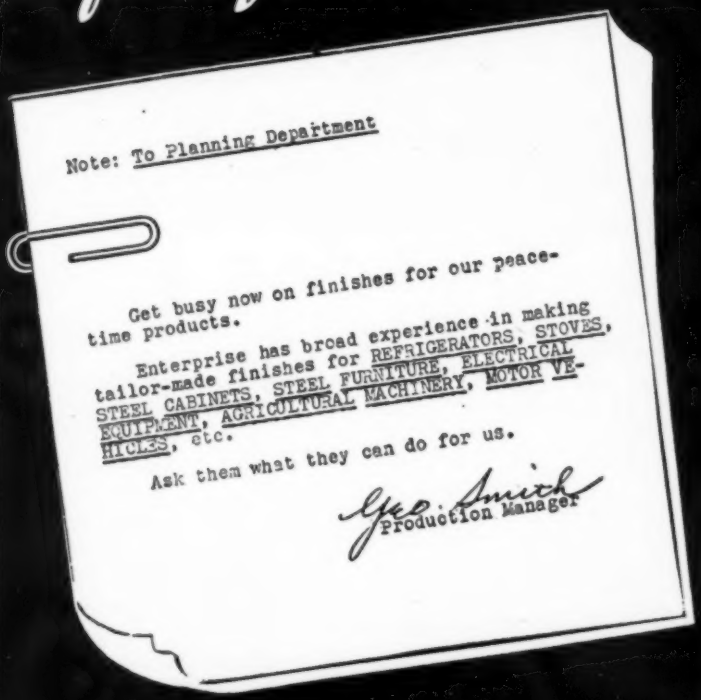
Paasche Airbrush (Canada) Ltd., 110 Elm St., Toronto

Branch Offices in Principal Cities

Paasche AIRPAINTING EQUIPMENT

Manual, automatic and special airpainting equipment, airfinishing booths, pressure regulators, airconditioners for compressed air lines, air dusters and strippers.

Request from Production


Note: To Planning Department
Get busy now on finishes for our peace-time products.
Enterprise has broad experience in making tailor-made finishes for REFRIGERATORS, STOVES, STEEL CABINETS, STEEL FURNITURE, ELECTRICAL EQUIPMENT, AGRICULTURAL MACHINERY, MOTOR VEHICLES, etc.
Ask them what they can do for us.
Geo. Smith
Production Manager

Your Inquiry Will Be Given Prompt Attention

ENTERPRISE PAINT MFG. CO.

Industrial Division

PEORIA & VAN BUREN STS. CHICAGO, ILL.

PROVE IT—FOR YOURSELF

PENETRAY

TRADE MARK

OFFERS THIS PROPOSITION TO YOU WHO USE SYNTHETIC BAKING ENAMEL

HALF SIZE PHOTO UNRETOUCHED

Excellent Adhesion

Just paint two identical pieces of metal and bake one under a standard 250 watt Infra-red lamp—the other under Penetray—with all other factors constant.

HALF SIZE PHOTO UNRETOUCHED

Poor Adhesion

YOU OWE IT TO YOURSELF TO MAKE THIS SIMPLE TEST

We make the unqualified statement that with four different lots of synthetic enamel, each made by a different manufacturer, with all other factors constant, we consistently get superior adhesion where Penetray is used in place of ordinary Infra-red lamps.

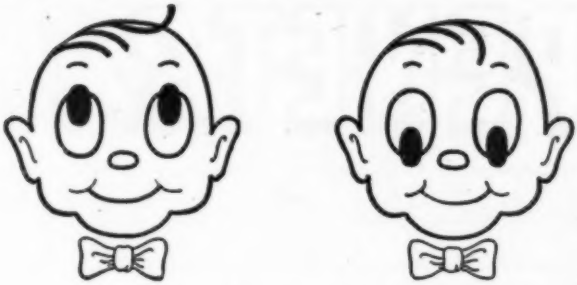
•

By equivalent bending, the effect shown in the illustration results. The same is true of corrosion tests.

INQUIRY IS INVITED—SALES ENGINEERS WILL CALL OR LITERATURE WILL BE SENT—WRITE

VERD-A-RAY CORP. TOLEDO 5, O.

HIGHER SOLIDS



LOWER COST

HIGHER SOLIDS CONTENT has made lacquers more advantageous than ever . . . less labor and fewer coats are required for the desired finish. This is accomplished by the "hot lacquer" process . . . and by the use of high solvency formulas, new lower viscosity nitrocellulose, and new resins in greater proportions.

High solids lacquers reduce finish costs . . . and emphasize the long accepted advantages of lacquer's quick drying, speed and economy of application, and unsurpassed ease of repairing.

C.S.C. makes no lacquers or thinners but supplies solvents and plasticizers to manufacturers of protective coatings.

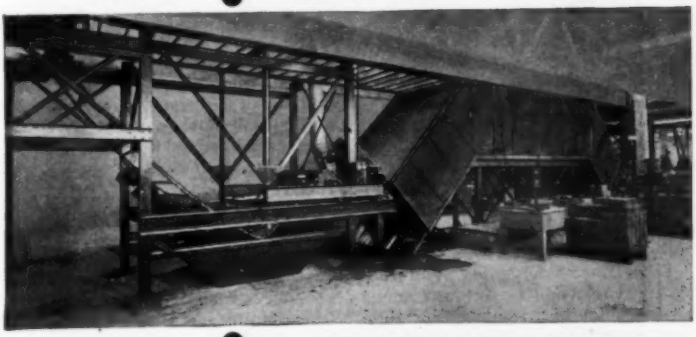
CSC

COMMERCIAL SOLVENTS

Corporation

17 East 42nd Street, New York 17, N. Y.

PRODUCT FINISH
will be an important factor



IN POST WAR MARKETS

To capture the highly competitive post war consumer market, manufactured products generally will have to be attractive. One of the important factors in producing a good finish economically is a well engineered oven.

A good finishing oven will have the following qualities:

1. Close time-temperature control.
2. Flexibility in its operating temperature range.
3. Ability to handle the heating and cooling cycle best suited to the product and finish being used.
4. Capable of using the most economical fuel.
5. Minimum fuel requirements due to the use of insulation and recuperation.
6. Minimum operating labor requirements.
7. Produces a uniform product day after day
8. Constructed to operate safely regardless of the human element.
9. Minimum of maintenance requirements.
10. Avoids making adjacent working areas uncomfortably warm.
11. Fuel consumption proportionate to the amount of load being processed.

Young Brothers Company, with 50 years of experience in this field, can provide ovens with all these requirements. If you contemplate expanding your facilities or replacing your present oven equipment talk the matter over with a Young Brothers engineer. There is no obligation.

YOUNG BROTHERS COMPANY
6524 MACK AVENUE **DETROIT 7, MICHIGAN**

YB Co. ESTABLISHED IN 1896

☆ ☆ Crosley's Setups for

BY FRANK B. KNIGHT
Plant Engineer,
The Crosley Corporation

MANUFACTURE of war products has brought many new problems in product finishing. Decoration is an important factor in peace-time product finishing, but it has no part in the finishing of war-time products. Finishes for war goods are determined almost entirely by their utility, their permanence and their performance in the field under severe conditions.

Like most companies manufacturing war products, our war goods have a much higher unit value than our peace-time products had, so that even a smaller unit output could easily account for a much larger dollar volume than in peacetime. This fact has made it necessary for us to compromise between large-volume straight-line production and short-run job-shop methods.

On the larger and more complicated units we have been faced with the problem of finishing a large number of different parts, but only a relatively few of each particular part. Ordinarily this would have meant many individual set-ups for relatively short runs.

To avoid delays in production and to achieve maximum over-all economy, we have tried to make our various processes as flexible as possible. To do this we have tried to avoid any installation that would be suitable to only one particular part, to the exclusion of other pres-

Fig. 1—General view of spray-painting department.

Painting War Products

Conveyorized spray painting, dip coating, electro-chemical treatment, fungus-resistant lacquering, silk-screen stenciling, chemical dyeing and Iridite treatment, for protectively coating war products.

ent parts or those which we might expect to have in the near future. This policy may have resulted in greater individual finishing cost on certain parts, but we are convinced that we have gained immeasureably in over-all production efficiency.

We are presently concerned with two general types of finishes.

1) Conventional application of a paint, varnish or lacquer film; and

2) Electro-chemical finishes with or without a subsequent dyeing or sealing operation.

The largest volume of finishing consists of the spraying and baking of paint, primarily for the purpose of surface protection. This operation is carried out in the main paint spray department, of which a general view is shown in Fig. 1. The major equipment used in this department consists of five water-wash spray booths—three with 10-ft. and two with 8-ft. openings.

Spray Booths; Bake Ovens; Conveyors

Serving these spray booths is a direct-fired baking oven. This oven is fabricated of 4-in. oven paneling and is approximately 40-ft. long, 14-ft. wide and 10½-ft. high. The heating equipment consists of one surface combustion LP 1000 gas-fired heater, controlled by Bristol and Minneapolis-Honeywell recording controllers. Connecting two of the spray booths and the oven is a chain conveyor. This conveyor passes through the two booths (as shown in Fig. 2) in such a manner that two men can spray work directly on suspended racks.

Under present operating conditions, the work is baked for approximately 45 minutes at a temperature of 290° F. At this rate of chain travel, the total operating time in each of the booths is 2¼ minutes, but this can be varied from approximately two minutes to six minutes. After the work leaves the oven, it returns in back of the spray booths, approximately 80-ft. by which time it has cooled sufficiently to be un-racked. *(to p. 40)*

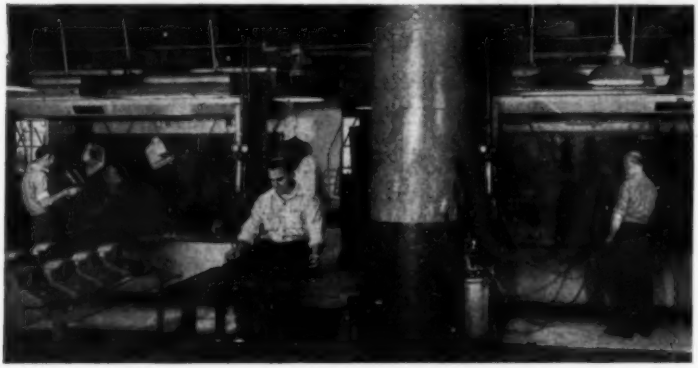


Fig. 2—Overhead conveyor carries work through two water-wash spray booths.

Loading and unloading are performed at the same point, using a station about 20-ft. long. These racks are the result of a large amount of research and exprimentation due to the fact that it is desirable to handle approximately 2000 different parts without changing racks. We have been highly pleased with the results obtained.

The remaining three booths are used for especially short runs, special finishes and parts that are not baked. The baked parts sprayed in these non-conveyorized booths are placed on the conveyor just prior to its entering the oven. Other parts subject to a baking time different than the conveyor speed, are placed on a special truck which is run into the oven through two swing doors in such a manner that the conveyorized work passes over the top.

Five Different Types of Finish Coatings

Five different types of finishes are being applied by spraying at the present time. These are wrinkle finish, zinc chromate prime, iron oxide prime, enamel and lacquer. Approximately ten different colors are used. The entire department is completely enclosed by masonry walls. The quantity of air moved from this room by exhaust fans is 54,600-cfm., while the quantity brought in is 56,000-cfm. This results in a slight positive pressure within the room to prevent infiltration of dust.

Each spray booth and the oven are equipped with individual exhaust fans located on the roof. The air supply consists of a capillary wash system with steam re-heat coils to control temperature and humidity. This system is located at some distance from the spray department; the air is conducted through a large underground duct and distributed through overhead distributing duct work. A general view of this air supply system is shown in Fig. 3.

In addition to the spraying of paints and lacquers, a considerable number of parts are coated by dipping in a water lacquer. On humid days, trouble was experienced from blushing. To prevent this it was

necessary to heat the room to reduce relative humidity. This resulted in uncomfortable working conditions for the remainder of the department so these dip tanks were segregated and a small booster unit-heater was installed in this room. The operators can now control the relative humidity to the point at which blushing ceases without any further heating beyond what is absolutely necessary. (A view of our lacquer dip department is shown in Fig. 4.)

A problem which had its inception in our war production was that of lettering, on painted surfaces, various legends, symbols and diagrams. Particularly in the manufacture of electrical equipment are these necessary. Various types of stenciling, transfers and printed materials were investigated but these were objectionable from one or more considerations of durability, legibility or cost. A silk-screen process, now being used, has met all requirements with the further advantage of great flexibility. (Fig. 5 shows a general view of our silk-screen working area.)

Since we are daily finding new applications and uses for the silk-screen process, we believe we cannot summarize all of the results that can be achieved economically.

(to page 42)

Fig. 3—General view of air supply system.

Fig. 4—General view of lacquer dipping department.

We do feel strongly, however, that this is a tool which can be very satisfactorily employed by any company having a problem of permanently painting instructions, symbols or diagrams on painted surfaces, on runs of any considerable quantity. In this article we will content ourselves, therefore, with a brief description of necessary equipment and the fundamental process.

Photographing the Designs Before Making Stencils

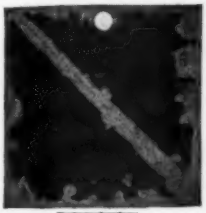
The silk screen has its beginning in the photographic laboratory. The original design, legend or symbols are printed or drawn on a light colored background material as large as possible, so that imperfections will be minimized when the original is reduced to its final smaller size. This reduction is accomplished by photographing the object, using a traveling camera with a potential reduction of 75%. A satisfactory lens is an apochromatic F-10 Tessar with an 18-in. focal length. The field should be 20 to 24-in.

Occasionally, in the case of very large work, more than one reduction is required; in this case a print is made of the first negative and another negative is made. Negatives are developed and fixed in the usual way.

The next step is the printing of the negative design on a gelatinous sheet known commercially as silk-screen carbon tissue. This carbon tissue is sensitized by a potassium dichromate dip, after which it is "squeegeed" onto a backing of transparent plastic such as cellulose acetate. The plastic-backed

Peroline
PREVENTS RUST
PROPERLY CONDITIONS FOR PAINTING

Painted after Peroline Protection



Painted after Conventional Oil Coating

Both of these panels were vapor degreased and painted with High Bake Black Fender Enamel and exposed to Salt Spray. Note lack of paint failure at the diagonal scratch and at the edges of PEROLINE coated panel.

These photographs are positive evidence of PEROLINE'S merit. You can duplicate this performance in your own laboratory.

PEROLINE

- provides better rust protection for parts in transit, fabrication and storage.
- removes light blushes of rust and marks from sweaty hands—destroys or neutralizes chemicals that would develop rust under conventional oil coatings.
- produces a properly conditioned surface for durable paint finish when the oil phase is removed from the work with solvents or in a vapor degreaser.
- makes it possible to safely use a vapor degreaser in preparation for a durable paint finish.

PEROLINE, if applied to a clean surface, keeps it clean and leaves it properly prepared for finishing with no other treatment than to remove the oil phase by vapor degreasing or with suitable solvents or thinners.

The Technical Department of the American Chemical Paint Company will also gladly advise you regarding proper chemicals for your use in rust removing and metal cleaning both for war products and those for domestic use.

Send for PEROLINE *literature Department B-6*

MANUFACTURERS OF INHIBITORS AND METAL WORKING CHEMICALS

AMERICAN CHEMICAL PAINT CO.

AMBLER ACP PENNA.

Note—West Coast Plants may address inquiries and orders for prompt delivery to Leon Finch, Ltd., 728 East 59th St., Los Angeles, California.

carbon tissue is now placed in a conventional contact printing frame with the negative—the carbon tissue occupying the position usual to standard photographic printing paper. The exposure is obtained by means of a 15-ampere arc light.

This exposure may vary from 7 to 12 minutes. Heat radiated from the arc light is sufficient to soften the carbon tissue and cause blurring and sagging. To obviate this, an artifically-cooled chamber may be used. This chamber has a compartment which is filled with dry ice and can be maintained at plus 40° F. to plus 60°F. The carbon dioxide atmosphere has no apparant effect on the process, and the low temperature effectively prevents softening of the tissue.

The plastic-backed tissue is then developed, using hot water as a developing agent. The portions of tissue unexposed to the light dissolve in the hot water, leaving the design as an open filigree on the plastic backing. The carbon

Fig. 5—View in the silk-screen stenciling department.

SILCOIZED IN NAVY GRAY

SILCO

THE NEW GLASS-BASE *SPRAYED-ON* PROTECTIVE COATING

Extremely tough! Remarkably beautiful! The ideal finish for stoves, burners, heaters, mufflers, exhaust and tail pipes, typewriters, metal office files, furniture, etc.

Withstands heat up to 1000° F. Has high resistance to corrosion, abrasion, impact. Any color; eggshell-gloss.

Easy to work. Spray it on and dry at 200° F. Then bake at 350° in any industrial oven. Non-priority. Navy and other approvals. Sample on request.

BLACK-MAGIC

ONE-BATH OXIDE BLACK

For all steels except stainless. Goes on fast. May be formed after processing. Effective rust inhibitor, excellent bond for paints and lacquers. Simple operation. Chemical reaction at 300° F. Non-priority, ordnance approved.

There are also BLACK-MAGIC baths for zinc, copper, brass, cadmium. The "Black Book" tells all. Send for it.

BLACK-MAGIC BLACKING SALTS for STEEL, IRON COPPER, ZINC CADMIUM

•

WITCH-DIP WITCH-OIL FINAL FINISHES

•

SILCO PROTECTIVE COATING

•

Cleaners
Wetting Agents
Acid Inhibitors
Heat Treating Salts

•

MITCHELL-BRADFORD

CHEMICAL COMPANY

MODERN METAL FINISHES

2446P Main St., Stratford P. O., BRIDGEPORT, CONN.

Midwest Field Office, 2651 W. Greenleaf Ave., Chicago 45

tissue can then be transferred to the silk screen. This silk screen is prepared by stretching photographic silk screen material over wooden frames in a manner similar to an atrist's canvas.

Further Details of Our Silk Screen Stenciling

After the carbon tissue has been fixed to the silk screen, the edges are protected by special lacquer to prevent leakage. The finished silk screen now consists of a mask pervious to paint only on the lines or areas of the design. Placed in contact with the object to be processed and rolled with a paint-covered roll, it transmits paint only at the proper places and thus the design is imprinted on the object.

Fig. 6 — Some of the ovens wherein silk-screen stenciled jobs are baked.

The finished (silk-screen stenciled) parts are loaded on trays and placed on the oven trucks. These trucks are then placed in one of the two ovens and the paint is dried or baked. Two ovens are required, since the paint on metal parts is baked at 250° to 260° F., and the paint on the bakelite or similar materials cannot be heated to over 150° F. without damaging the part. The silk screen is adaptable to objects with an irregular surface to a surprising degree. However, sharp corners or points shorten screen life. By means of special jigs and fixtures, curved surfaces can be lettered rapidly and without distortion. (Fig. 7 shows some of the typical results obtained.)

Fungus-Resistant Lacquers Used on Electrical Equipment

An interesting outgrowth of a war necessity is the application of the fungus-resisting lacquers to all types of equipment. Radio and electrical equipment of all kinds, when exposed to the high humidity and temperature of the tropics, soon becomes coated with fungus. These fungi, with their products of growth, soon form conducting paths over insulators and parts and the equipment becomes inoperative or its efficiency is impaired.

It is desirable to spray this fungus-resisting lacquer, after the equipment has been completely assembled and before it is tested. As a consequence, spray booths are installed in the assembly line and no transportation is required. (A typical spray booth is shown in Fig. 8.)

This lacquer, which is air-drying, is sprayed in an exhausted

Announcing

PHOSTEEL

Another New Du-Lite *Chemifinish*

DU-LITE "PHOSTEEL" is a phosphate type protective finish for iron and steel with the following advantages.

LOWER COST—to buy and use.

BALANCED BATH—frequent analysis not required.

SAME BATH produces final finish or bonding coat.

MEETS ARMY SPECIFICATIONS.

NO LICENSE REQUIRED.

If you now use or contemplate using a phosphate finish, DU-LITE "PHOSTEEL" merits your consideration. Send for details.

The DU-LITE "FACT BOOK" should be in your file. This most up-to-date information about the chemical finishing of metals is yours for the asking.

DU-LITE CHEMICAL CORP.
MIDDLETOWN, CONNECTICUT

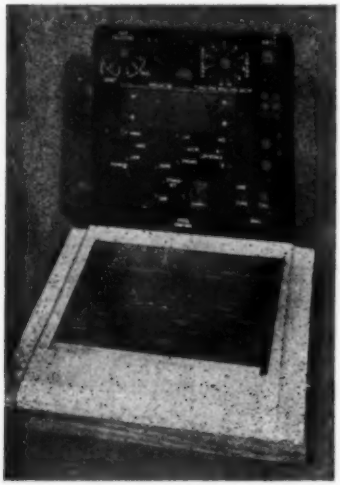


Fig. 7—A typical stenciled job and the silk screen used to reproduce it in quantities.

booth because of its highly toxic nature. Any subsequent disruption of the lacquer film is repaired by spotting with a brush.

Inspection With Black Light

The fact that this film is colorless made the inspection of mazes of wires and parts for coverage a very difficult operation. To render inspection easier and more positive, these booths are now equipped with black light inspection facilities. These lights are 250-watt lights and burn continually. The white light is used for spraying and, after the unit is sprayed, it is switched off. A small amount of fluorescent dye is added to the lacquer and when the coating is inspected under the invisible black light rays, it glows with a purple color. Any areas not coated appear as black patches. (Fig. 9 shows a set ready to be sprayed.) Spraying and inspection by this method are very satisfactory.

Electro-Chemical Finishes Are Used Also

The electro-chemical finishes, like the paint and lacquer finishes, have undergone considerable change as a result of new war requirements and the stringent material situation. In this department seven different plating coats are applied. These are cadmium, zinc, tin, nickel, black nickel, chromium and sulphuric acid anodizing.

In addition to the standard plated finishes, several special surface treatments are performed. These are:

1) Surface etching of aluminum prior to painting.

2) Iridite treatment of zinc plate.

3) Black dye treatment of anodizing.

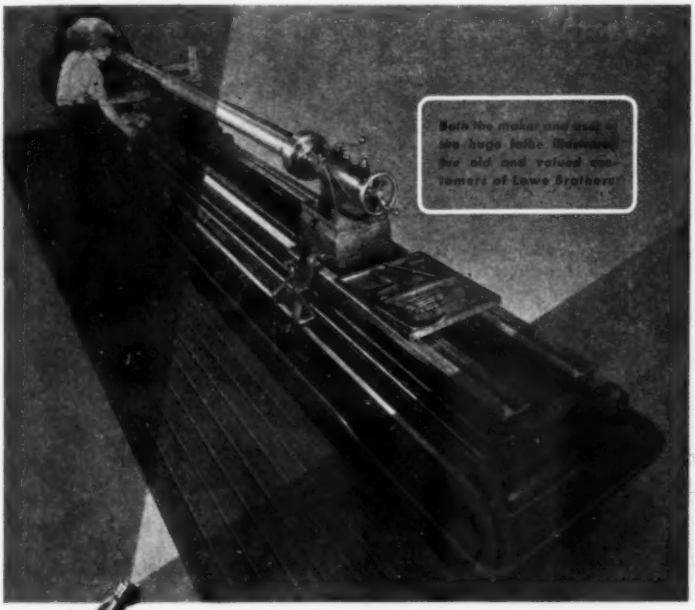
Due to the increased use of aluminum the volume of etching has become considerable. Etching is performed in a caustic bath and the resulting smut is cleared by a subsequent acid dip. Two acid solutions are used:

1) A mixture of 75% sulphuric acid and 25% nitric acid for low-silicon aluminum alloys; and

2) A mixture of 90% nitric acid and 10% hydrofluoric acid for high-silicon alloys or those castings with a silica glaze. The etching produced by a 10 to 15 second dip has given satisfactory paint and lacquer adherence.

Black Dyeing of Anodized Coat

The black dyeing of an anodized coat is accomplished by means of a 5 to 10 minute dip of the part without any sealing operation after anodizing. The black-dyed surface



An Old Idea that has Paid Dividends for Many Lowe Brothers Customers

Many valued customers of Lowe Brothers have learned how to make entirely new products as a result of war-born industrial and military needs.

But they still retain one *old* idea. It is their continued reliance upon Lowe Brothers for industrial finishes which serve their particular needs.

The Joyce-Cridland Company, for instance, is now using such equipment as the huge Monarch Lathe illustrated, to produce hydraulic jacks for Army, Navy and Industrial use.

And, we believe, it is no mere coincidence that both the Joyce-Cridland Company, manufacturers of industrial lifting equipment, and the Monarch Machine Tool Company, the lathe maker, are long-time users of Lowe Brothers Finishes.

Lowe Brothers experience in supplying finishes to *makers and users* of Industrial Machines and equipment is yours to call upon. No obligation.

INDUSTRIAL SALES
THE LOWE BROTHERS CO.
DAYTON, OHIO

Lowe Brothers FINISHES for Industry

is then sealed with an acetate sealer. Some difficulty was experienced in lack of uniformity on certain castings but this has been eliminated through use of a dip in the 90% nitric and 10% hydrofluoric acid, as mentioned above. This acid mixture removes the glazed film on the surface and promotes an even anodic coat. The two acid mixtures used for etching and clearing smut are extremely difficult to handle safely. The method finally adopted for the 75% sulphuric and 25% nitric was the insertion of a 1-in. thick ceramic liner in a steel tank.

This liner is approximately 2-in. smaller than the tank and the space is filled with a bituminous asphalt compound. This tank has been extremely satisfactory. The hydrofluoric acid content of our other mixture practically eliminated any material except wax, so this tank has a 2-in. to 4-in. thick lining of wax cast into it. After several unfortunate experiences with pin-holes, a perfect lining was obtained and no further trouble was experienced.

Fig. 8 — Typical setup for spraying fungus-resistant lacquer on special electrical equipment.

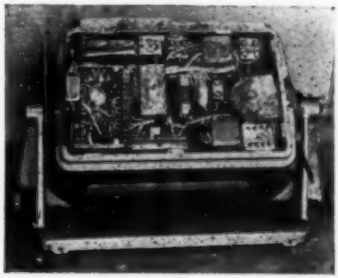
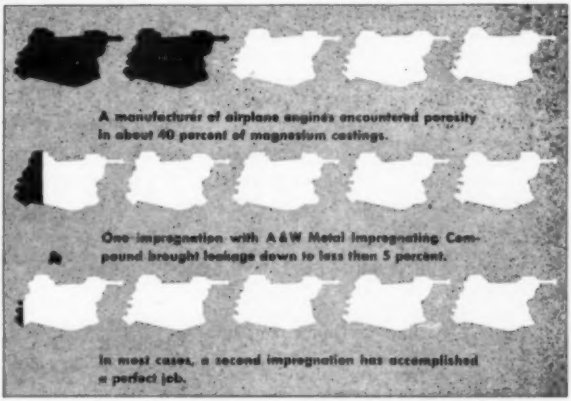


Fig. 9 — Close-up of set ready to be sprayed with fungus-resistant coat.

The Iridite treatment of zinc plate as an aid to wear and corrosion resistance and as a paint base has proven to be a satisfactory substitute for the highly critical nickel and cadmium plates. This process is set up in such a way that parts leaving the zinc-plating tank can be processed with Iridite or not, as desired. The color used at present is an olive drab but other Iridite colors are practical by changing the present solution or adding new tanks. The fact that finishes on war products are primarily designed to be non-reflecting and inconspicuous accounts for the greater volume of drab colors and blacks. Certain of these processes will undoubtedly become commonplace in postwar products however. Particularly in the field of optical and photographic equipment is a non-reflecting permanent finish desirable.

New, Safe way to seal porous castings


A manufacturer of airplane engines encountered porosity in about 40 percent of magnesium castings.
One impregnation with A&W Metal Impregnating Compound brought leakage down to less than 5 percent.
In most cases, a second impregnation has accomplished a perfect job.

Here are typical results

A&W Metal Impregnating Compound makes leaky castings pressure-tight.

Porous aluminum, magnesium and gray iron castings can be sealed pressure-tight with Ault & Wiborg Metal Impregnating Compound. This new impregnant is a synthetic resin designed specifically for use with monomeric styrene as a casting sealant. When properly applied, the compound becomes "frozen" in the pores and cannot exude or "bleed". Because the monomeric styrene reacts chemically with the resin there is no evaporation. The impregnant has been found resistant to high octane gasoline, hot motor oil, alkali, ethyline glycol and pressure of all kinds. It has extremely high heat resistance under prolonged operating conditions.

An outstanding advantage of this new sealant is its safety in application. The preparation does not require hazardous catalysts, and no technical control is necessary. It is prepared simply by mixing the resin with the monomeric styrene in the proper proportions. This solution is forced into the castings by the vacuum-pressure method in a large sealed tank (autoclave). The impregnated casting is then cleaned of excess compound and baked. In the event that castings are large and the production not great, modifications of this technique may be used, such as pressure fixture.

The resin forms cross linkages with the styrene during baking, causing the solution to go from a thin liquid to a gel state. The styrene both serves as solvent and converts to the copolymer formed with the resin. Hence there is no "solvent" loss on baking.

For complete information about the characteristics and application of A&W Metal Impregnating Compound and the advantages it offers you, use the coupon below or write today to Ault & Wiborg Division of Interchemical Corporation, Empire State Building, 350 Fifth Avenue, New York 1, N. Y.

Ault & Wiborg, Division of Interchemical Corporation, 350 Fifth Avenue, New York 1, N. Y. IF-6

Please send me, without obligation, complete information about A&W Metal Impregnating Compound for sealing porous aluminum and magnesium castings.

Name_____

Company_____

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☐ Please check here if interested in finding an outside source to do your impregnating.

Ault & Wiborg

DIVISION OF INTERCHEMICAL CORPORATION

Makers of Polymerin*—the original speed-bake finish

*Reg. U. S. Pat. Off.

Luminous Paint

Notes on how to properly use luminous paint, preparation of surfaces to receive it, how to apply it, and what precautions to take to insure satisfaction.

BY ARTHUR H. JACKSON
Manager & Chief Chemist
American Luminous Products Co.

LUMINOUS paint has certain characteristics which must be considered if success is to be had with its numerous applications. The pigments employed are of a sulphide nature which react chemically when they come into contact with lead and paints that contain lead. No free sulphur is present, as it is liberated during the fusing process.

The composition of the vehicles should be considered, as they must not contain driers such as lead, manganese or cobalt. This means that ordinary varnishes are unsuitable either as a mixing medium or for application over the paint as a protective coating. Varnishes containing certain oils cause a jellying, among the most objectionable being linseed oil which is unsafe to use when stability of the paint is considered. This setting-up may not be apparent upon formulation, but manifests itself after the product has stood in cans for some time.

Pigment Settles When Material Stands for a Time

Because of the structure of the luminous pigment a settling occurs upon standing, with but little suspension. The vehicle separates and remains on top, thus requiring a thorough stirring or agitation to work up all pigment. The paint should be kept in this condition throughout the painting operation.

It is apparent from the foregoing that the luminous material must not be mixed with ordinary paint, but must be used as it comes from the can. New brushes are recommended to avoid contamination with any lead-mixed paint, as used brushes, even after cleaning, often have traces of such paint up near the handle.

When Used Over Old Paint Apply an Undercoat of White

When application is made over old mixed paint it is imperative that a base coat of white pigment paint, free from lead, be employed to prevent contact with the luminous paint. It is considered good practice to always apply luminous paint over this white ground coat, irrespective of the surface to be illuminated, as a more satisfactory result is obtained in light radiation.

Luminous paint can be applied the same as ordinary paint—by brushing, dipping, spraying or by the silk-screen process. Because of the absence of driers, the varnish-type of luminous paint requires more time for drying than is usual. However this has been remedied in a large measure by

AND TOMORROW'S
PRODUCTS
FOR PEACE...

EGYPTIAN *Finishes*

Today most of Egyptian's wide range of finishes is devoted to the war . . . high quality finishes for war material used in the war or related to it.

Through the war years Egyptian has steadily maintained the reputation for quality which has marked Egyptian products for over half a century. You can depend upon Egyptian for the finest finishes obtainable . . . for the war materials you are making today; for the post-war products you will make tomorrow.

Inquiries concerning your present and future finish needs are invited.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

EGYPTIAN FINISHES

EGYPTIAN
SPECIALIZED PRODUCTION FINISHES

improvements in the process of manufacturing the vehicle. Artificial heat has been utilized in drying some articles when a quick dry is required.

For Quick Drying, Use Lacquer Type Vehicle

Spirit varnish or lacquer-type-vehicle luminous paint is available for those who must have maximum speed in drying. The lacquer must be specially prepared. Otherwise the jellying previously mentioned occurs when the pigment is mixed with it. Ordinary lacquers can be used as a vehicle if the mixture is applied by spraying immediately after formulation and before sufficient time has elapsed to permit the jellying.

Referring to the base or undercoat, it should be pigmented with titanium and should contain no metallic driers. On paper or cloth the addition of blown castor oil or soya oil will increase the paint film's pliability.

Any colors added to luminous paint will decrease the luminousity and most of them will chemically react in the can or film. This reaction will vary in degree and time according to the color used. Suitable colors should be in a finely divided form and used sparingly to produce pastel shades, as deep colors cut down the light radiated to a marked degree.

Outside Exposure Shortens Life of Luminous Paint

It may be said that luminous surfaces retain their activity for years indoors, being permanent for all practical purposes. When exposed to severe weather conditions and salt water, a life of two years would be not at all unusual. This is dependent on the durability of the vehicle and the nature of the pigment; also, whether or not a finishing coat of the vehicle has been applied. The pigments deteriorate rapidly when air or moisture reaches them, and it is obvious that the more protection they are given by the vehicle the longer the light radiation will continue.

It has been determined over the years that calcium sulphide luminous pigment, when specially prepared, gives the best results with long life of the paint and freedom from destructive discoloration when exposed to direct sunlight.

Water-Wash Spray-Booth Compound

"The present wide use of the water-wash type of spray-painting booth has brought forth an urgent need for an effective wetting agent which prevents the accumulation of paint pigment on the walls, lines, and circulating system, and which effectively reduces fire hazard arising from the collection of pigments in the exhaust stacks. To this need 'Traversite' has provided efficient solution, as is testified by its wide use wherever the water-wash type of spray booth is in operation. A new bulletin gives a brief but adequate description of the operation of 'Traversite' in the spray booth, with full directions for its most effective use.

"This product is another in the line of carefully tested, laboratory controlled products, produced by the manufacturers of 'Penetone', non-inflammable degreaser."—The Penetone Co., Tenafly, N. J.

New Thermoplastic Is Announced by Monsanto

Monsanto Chemical Co., St. Louis, Mo., has begun volume production of Styramic HT, a new thermoplastic with remarkable electrical insulating properties, after six years of research undertaken at the request of the armed services.

Predicting that the new thermoplastic will contribute substantially to the development of electronic devices, Monsanto states that Styramic HT is also noteworthy in that it holds its shape and strength at relatively high temperatures, yet it can be molded by the fastest and most economical means.

Let us work with you on Post-War Products

STANDARD VARNISH has anticipated sweeping changes in the design and fabrication of post-war products, and its research laboratories are ready with advanced formulations in protective coatings.

As leading engineers of product finishes for over 70 years, we invite your confidential consultation on the development of specific polyplastic postwar finishes for your products of tomorrow.

Let's start with the finish; it's what they'll see first!

STANDARD VARNISH WORKS

2600 RICHMOND TERRACE
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SINCE 1870

Engineers of Product Finishes

Bake Finishing Setup

A well planned conveyorized setup for cleaning, dip coating and oven baking the parts of small motors and transformers; plus a parallel arrangement of equipment for impregnating electrical coils and baking impregnated coatings afterward.

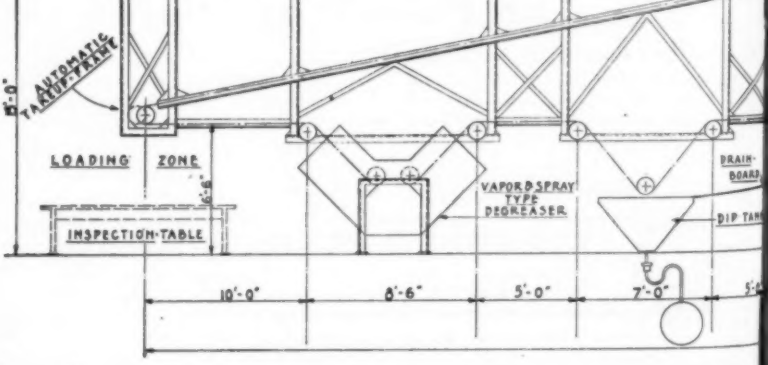
IN THE MANUFACTURE of small motors the finishing process invariably involves two basic finishing requirements. First is the finishing of outside parts of the motor, such as the base, stator housing, dust shields, end bells, etc. The second finishing problem, though not strictly a decorative finish, is the impregnation of stator and rotor coils with varnish, insulant or impregnant.

Normally the installation of equipment to perform these two functions is not a difficult problem. It requires only a specific and detailed knowledge of production, processing requirements, building conditions, space available and plant layout.

However, an eastern manufacturer of small motor and electrical parts was faced with the particular problem of reorienting his production in an existing building which, in itself, was hardly large enough to handle existing production without taking into consideration a greatly expanded production schedule.

The problem confronting this manufacturer was the installation of finishing and baking equipment that would, first of all, handle

Fig. 1—Side elevation of conveyorized setup for performing the operations of degreasing, dip coating and paint drying on electric motor parts.



...up for New Motor Parts

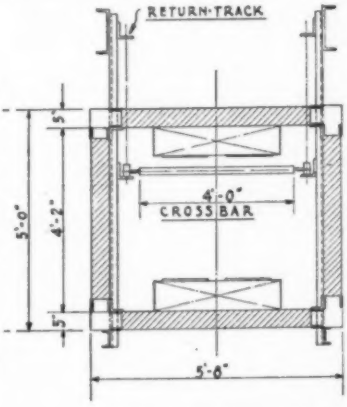
small parts at high production, and secondly, would use absolutely the minimum of floor space for the process.

Setup for Cleaning, Painting and Drying Motor Parts

After the review of production requirements and the space available, the problem was answered in the following manner:

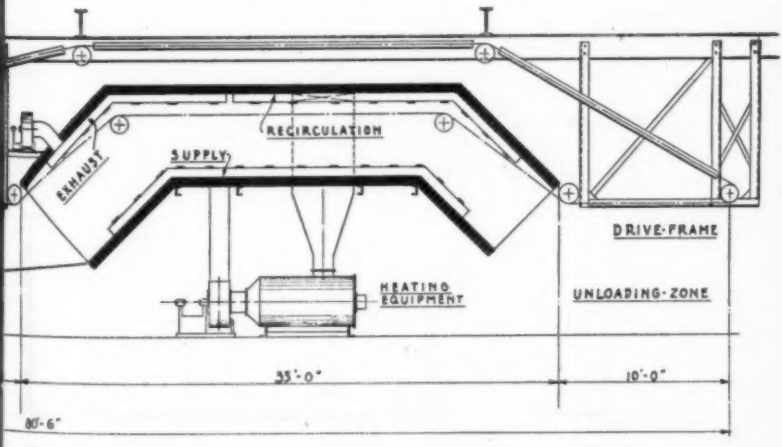
In the finishing of the outside parts, which was a black japan operation, the production required the installation of a continuous conveyorized cleaning, painting, baking system such as the one indicated in the accompanying drawing marked Fig. 1.

This design was determined for many reasons, among which were ease in loading, minimum effort, location of the loading position of the conveyor to the last finishing operation, and the overall general arrangement of the oven to the production flow in the plant.



OVEN·CROSS·SECTION

By A. G. TRIVISON, Engineer; Industrial Oven Engineering Co.



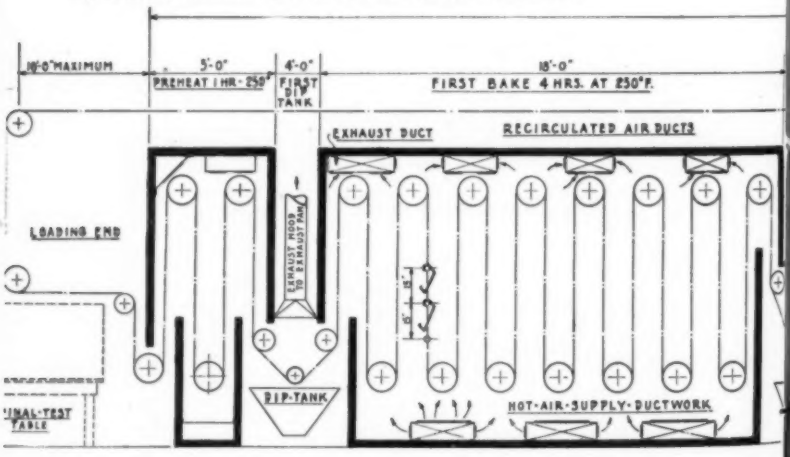
After loading, which was accomplished by the inspector from the inspection benches, the parts were conveyed to a combined vapor and spray-type degreaser, as indicated on the drawing. A combined vapor and spray-type degreaser was used because of the nature of the parts and the quality of the forming oil—and in some cases it was necessary to remove machining chips which carried over from the fabricating operation.

Due to the fact that chips and solid articles would adhere to the part, spray-type degreasing was used to dislodge by pressure any of these parts which may have seated themselves in corners and other accessible points in the part. These chips would not have been removed by the action of the solvent vapor alone.

After the parts emerged from the degreaser they still retained a relatively large portion of the heat that was picked up in the degreaser. The relationship of the degreaser and the dip tank was determined by an overall temperature drop in the parts so that the parts would automatically be immersed in the dip tank at a temperature that was sufficient to assure more rapid drying, but at the same time would not evaporate the solvent from the paint or cause a change in the viscosity of the paint in the tank itself.

In the actual dipping operation some of the parts were hollow cups without hanging holes. These cups were taken into the dip tank with the closed top up and the base of the cup at a slight angle to prevent entrapment of air and still allow proper draining. Spring clips were used. They were so designed that the outward spring pressure of two prongs held each cup in positive relationship tightly enough to prevent the cup from becoming dislodged in the dip tank, but at

Fig. 2—Side elevation of conveyorized 2-stage setup for applying and baking the impregnating insulation coating to electrical coils for motors.

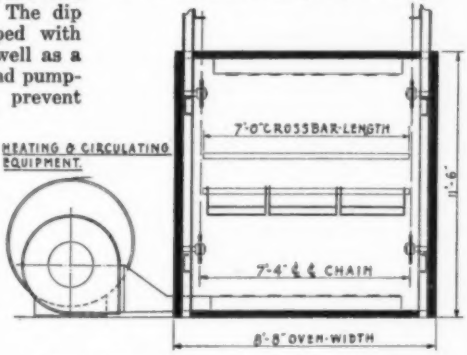


the same time the cups could be easily loaded and removed from the fixture. Special alloy spring strip steel was used because of the temperature of the operation in the baking oven.

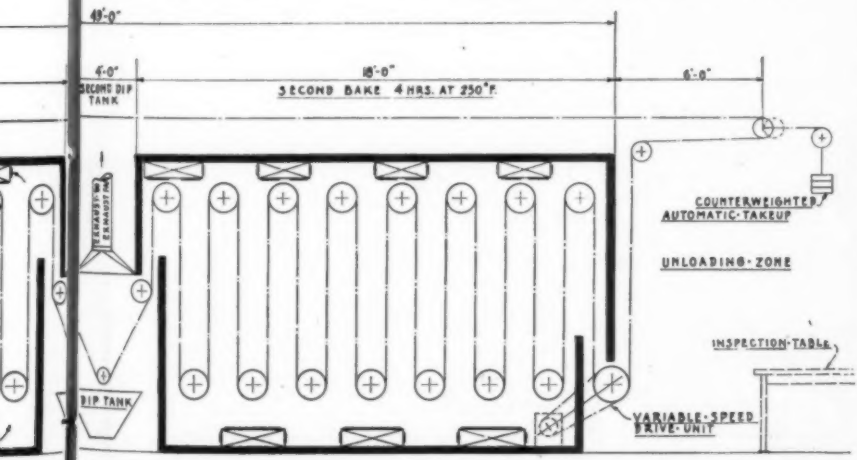
After dipping, the parts were allowed to drain for a required length of time over a drain board which was suitably pitched and equipped with draining pans and all safety requirements. The dip tank likewise was equipped with paddle-type agitators, as well as a motor-driven circulating and pumping system in order to prevent viscosity change as well as deposition of pigment in the paint.

From a fire protection angle the dip tank and drain board were equipped with extinguishing devices actuated by a rate of rise system which was placed over the conveyor chain pit at a point above the dip tank and on the drain board. A type of extinguishing agent was used that would require the minimum amount of cleaning after discharge. CO_2 equipment was tied in with automatic dump valve and tank arrangement in strict conformity to National Board of Fire Underwriters' and insurance codes.

After leaving the drain board the work is carried continuously into the oven, first traveling through



Above: Cross section of oven shown in Fig. 2.



an exhaust zone, thence into the baking zone, thence to an air-cooling zone, to an unloading station.

Features of Oven Wherein Paint Coating is Baked

The oven was equipped with a direct gas-fired recirculating type heater which was sized on the basis of not only the heat load—that is the amount of heat required to bring the parts to a baking temperature—but more correctly from an air and solvent vapor load. This exhaust air load was based on the minimum air requirements to maintain the oven atmosphere at an explosive concentration point under the minimum requirements set by National Fire Underwriters' and insurance codes. Solvent amounts were determined by the solid solvent ratio of the paint, the solvents vapor volume ratio and, of course, the amount of actual solvent carried into the oven by the dipped work.

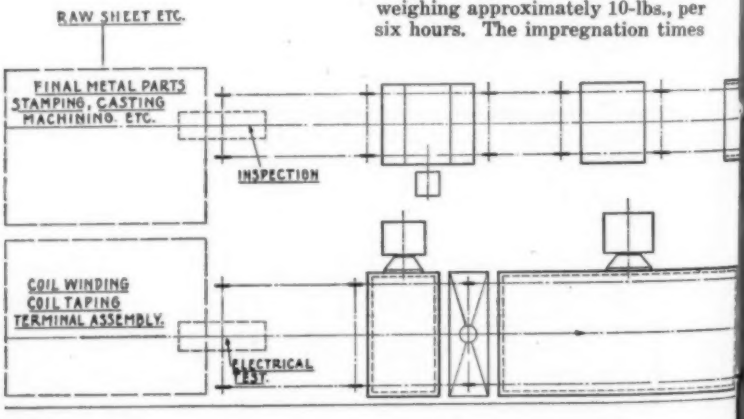
The entire oven unit was controlled for operating temperatures at several points in the system so that overheating of the work by too high air temperatures was prevented. All the controls and safety features of the system were further interlocked with the fire control equipment so that in the event of accidental fire, the system was completely shut down, paint tank emptied, the dip tank and drain board flooded with extinguishing agents. The work in the entrance to the oven was also blanketed with extinguishing agents.

This generally describes the oven which was installed for the paint finishing.

Setup for Impregnating and Baking Motor Coils

The requirements for the impregnation and the baking of the impregnant in the electrical coils of the motors presented a somewhat different problem. The parts were to be inspected and given an electrical test, then preheated, dipped, baked for four hours, given a second hot dip, then baked for the second four hours. All of these processes had to be tied together as a synchronized continuous operation.

Production was in the neighborhood of 3000 individual coils, each weighing approximately 10-lbs., per six hours. The impregnation times



and temperatures were set by the impregnation manufacturer who also accurately determined baking time and the temperature drop through the system. These conditions in themselves were not difficult but, due to the fact that a very limited amount of space was available, the designs that are shown in Fig. 2 were evolved.

The design shows a festoon type multi-pass conveyor oven arranged in triple continuous operation, as shown, with the dipping tank spaced between the ovens, also as indicated. After considering the customer's specifications it was concluded that the processing requirements called for this type of system.

Manual Loading of Conveyor; Complete Automatic Operation

The overall design, as developed and shown, took into consideration manual loading after electrical test and thence completely automatic operation until the units were completely processed; then they were delivered into another testing stand and tested for electrical breakdown, grounding and resistance.

The oven groups consisted of the following:

1) One preheat oven; baking time one hour; operating temperature 250° F.; maximum temperature 500° F.

2) Continuous dip into coil varnish at internal coil temperatures of 250° F.

3) First baking oven; baking time four hours; operating temperature 250° F.; maximum temperature 500° F.

4) Second dip into coil varnish at internal temperatures of 250° F.

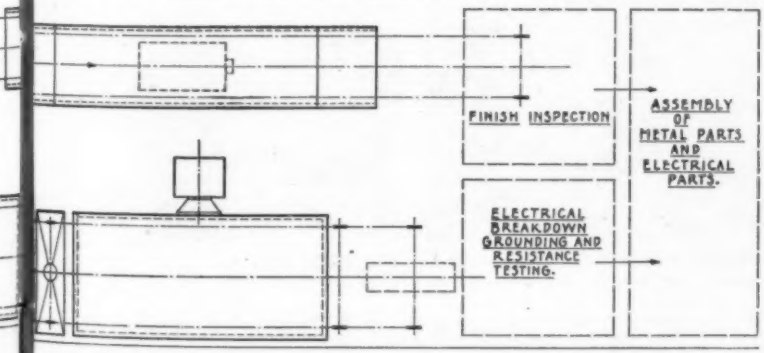
5) Second baking oven; baking time four hours; operating temperature 250° F.; maximum temperature 500° F.

6) Cross unload at floor level.

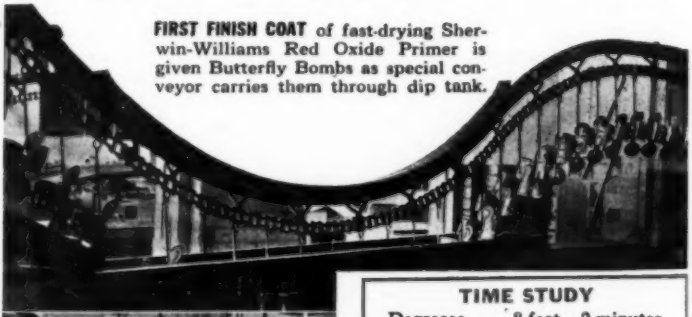
7) Electrical test for voltage breakdown, grounding, resistance.

With these requirements it was determined that one single continuous conveyor, cross-bar type, would be arranged to operate in festoon fashion through all of the ovens which were to be set in line between the final unimpregnated test table and the final electrical test table. By use of a single conveyor the controlled speed of each

Fig. 3—Floor plan layout of the conveyorized setups shown in elevation in Figs. 1 and 2. Notice how they are positioned parallel to one another.


FINISH INSPECTION
ASSEMBLY OF METAL PARTS AND ELECTRICAL PARTS.
ELECTRICAL BREAKDOWN GROUNDING AND RESISTANCE TESTING.

FLUTTERING OUT



FIRST FINISH COAT of fast-drying Sherwin-Williams Red Oxide Primer is given Butterfly Bombs as special conveyor carries them through dip tank.

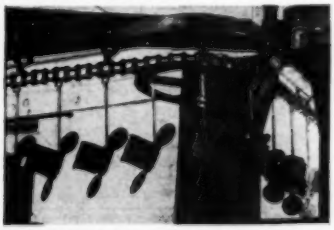
DEGREASING "BUTTERFLIES" in a tank of solvent prepares bombs for first coat.

TIME STUDY

Degrease	8 feet		2 minutes	
Cool	12	"	3	"
Prime Dip	8	"	2	"
Prime Drain	24	"	6	"
Prime Bake	8	"	2	" (Infra-red)
Prime Cool	16	"	4	"
O. D. Dip	8	"	2	"
O. D. Drain	20	"	5	"
O. D. Bake	12	"	3	" (Infra-red)
Cool	64	"	16	"
	180 feet		45 minutes	

TIME TABLE shows how bombs are finished in record time!

PRIMARY ASSEMBLY of "Butterflies" is made from pre-stamped metal parts.



WELL DONE! Infra-red baking quickly dries first primer coat.

SHERWIN-WILLIAMS

THE *Butterflies*

STINGING THE JAPS! Deadly "Butterflies" scatter fragments 50 feet upon contact with any object!

SHERWIN-WILLIAMS helps RYERSON & HAYNES, INC. speed output of deadly Butterfly Bombs

Sherwin-Williams technicians helped Ryerson & Haynes engineers develop a conveyor line that dips, bakes and dries Butterfly Bombs in one continuous operation.

Two fast-drying S-W finishes enable this line to move along at a record pace—S-W Red Oxide primer and S-W Olive Drab Lustreless Enamel.

Perhaps we can help *your* production! Write the Sherwin-Williams Co., Cleveland 1, O.

INDUSTRIAL FINISHES

operation is synchronized with the other, and one variable-speed drive unit would change the processing speed for the entire system.

Gas-Fired Ovens; Dipping Tank Exhaust

Each oven was a complete functioning unit with its own direct gas-fired air heaters, all of which were mounted along one side of the equipment. Naturally each oven was complete with the full compliment of required safety and temperature controls in keeping with rigid safety standards.

Each dipping tank was equipped with its own exhaust system, which was an independent exhaust unit and not tied in directly with the oven exhaust systems. All exhausts in the oven systems and in the exhaust systems were completely interlocked with main safety shut-off valves so that failure in any of the exhaust fans in any of the systems would result in complete shutdown of the air heaters.

The dip tanks were made removable from the fan side of the unit as the air heaters were located so that inspection, maintenance and external operating equipment was centrally located on the one side of the unit.

Opposite one side of the unit, in this particular plant layout, a main traffic aisle was placed. For appearance sake, all oven equipment, dip tanks, etc., were enclosed in streamlined sheet metal shrouds on the aisle side. This stream-lining was very pleasing to the eye, easy to clean, and in conformity to the overall design of the modern type building in which the equipment was installed.

One of the most important considerations, which added greatly to the efficiency of both the paint finishing and the varnish baking, was the relationship of the placement of the ovens to the complete manufacturing operation and plant layout.

The drawing marked Fig. 3 shows the arrangement of the oven equipment in relation to the preceding and subsequent processes, storage area, fabrication areas and test stands.

An inspection of Fig. 3 will indicate that the operations were streamlined and in direct conformity with the most advanced thinking in plant engineering.

The description of both of these processes has been given despite the fact that one, strictly speaking, is not a finishing operation. But because there were so many points of consideration to the complete installation of both ovens, to omit one would not have given a true picture of what correlated efficient oven design can do for modern streamlined high-production manufacturing methods.

Many Economies and Merits to This Complete System

Primary advantages of the layout are:

1) Manpower saving.
2) Economical operation.
3) Compact arrangement.
4) Flexibility of operation.

Perhaps you have noticed that in the coil-baking setup all of the ovens have been set up for operation at maximum temperatures of 500° F., although the operating temperatures normally encountered were in the neighborhood of 250° F. Through foresight on the part of the management of this organization, extra heating capacity was installed initially to take care of the wide range of solvents, varnishes and synthetic resins which are now beginning to come into actual production. When one

THE RIGHT FINISH solved the problem of rejects for EPIPHONE, INC.

George Van Eps, well known artist, with an Epiphone guitar.

Like many a manufacturer with a tough finishing problem, Epiphone, Inc., makers of fine musical instruments, "put it up to Murphy".

Here's what Mr. O. A. Stathopoulo, President of Epiphone, Inc., says:

"Prior to the use of Murphy Finishes, we had a large number of returns, due to discoloration and checking of the finish on aging. Our particular instruments are easily affected by climatic changes, and they are used by professional musicians who do a great deal of traveling. We have found that Murphy was the only company to supply us with a lacquer that will stand up—and we consider this an outstanding contribution to the progress of our concern."

You, too, will save yourself time and expense by putting your present or postwar finishing problems up to the Murphy service-salesman. For he represents an organization that has specialized in the development of industrial finishes since 1865—*finishes that are individualized to the need of the user.*

Today, we can offer you wider experience than ever. Since Pearl Harbor, for example, we have produced over 2,000 individualized finishes to meet the varied requirements of products for our Armed Forces and essential civilian needs.

We are always ready to put any special problem you may have up to our laboratory for solution.

Put it up to Murphy

MURPHY FINISHES CORPORATION

A subsidiary of Interchemical Corporation

NEWARK • SAN FRANCISCO • CHICAGO

MURPHY *Protective Coatings*

considers that this installation was made a number of years ago, the management of the organization wherein this equipment is installed will be in an excellent position to process the new high-temperature resins, which offer decided electrical advantages in the overall performance, size and capacity of the postwar integral horsepower and fractional horsepower motors.

Open Tubs of Lacquer and a Red Hot Stove

SEVERAL years ago we received, from a firm in an adjoining state, a request for information about dipping lacquers. Looking up their financial standing, we were so surprised at the size of the company that we decided it should be looked into personally. Accordingly, on a cold winter day, I drove up to the door of a very fine factory building. The purchasing agent turned me over to the superintendent who explained the situation.

In their regular production they used practically no paint, but as a sideline they were manufacturing, in a crude way, a line of metal novelties, painted flower pots and window brackets. Then he took me to the department. I found that his phrase "in a crude way" was an understatement. I felt thankful that my life insurance premium was paid, and inquired of the superintendent whether his was. He seemed surprised at the question, but assured me that it was.

Primitive, sloppy, wasteful, dangerous

Well, here is what I found: The finishing room was about 20x30-ft., with no ventilation. At strategic places throughout the room were about 20 ordinary wash tubs containing lacquer. Girls were hand dipping individual pieces into the various lacquers, and hanging the dipped work on racks. Lacquer thinner fumes were so thick they made my eyes water.

What aroused my great apprehension was the fact that in the midst of all these tubs was an electric spot welder. Here a girl was busily welding brackets. Sparks were gayly flying in all directions around open tubs of lacquer. To cap the climax, in one corner of the room there stood an old pot-bellied coal-burning stove, a cheerful cherry red. This stove furnished heat for the room.

This had been going on for months without a fire. To this day, I can't believe it possible. Reason for the situation was simply that, "they didn't know lacquer was inflammable," nor that a heavy concentration of lacquer fumes was explosive.

When the facts were made known to the superintendent, he immediately stopped the welder, allowed the fire in the stove to burn out, and closed the department. Within a week the department was going again, but it was

Oakite Cleaning

Speeds Surface Preparation of INCENDIARY BOMBS by Quickly Removing Oil...Rust...Heat Scale, Brazing Fluxes at LOW COST!

CONTINUED use by contractors making steel incendiary bomb cases and bomb components indicates that Oakite cleaning materials and techniques are an important factor in expediting production of these weapons.

FAST-WORKING Oakite materials effectively prepare surfaces of bomb assemblies for organic, electroplated, or other protective finishes by thoroughly removing oil, grease, shop dirt, heat scale and discoloration, rust, or brazing fluxes. Contractors find they can save precious production minutes, are helped in meeting schedules more easily and holding rejects to a minimum!

BEFORE AFTER

Photo shows type of steel incendiary bomb before and after surface preparation with Oakite materials.

OIL . . . GREASE . . . HEAT SCALE . . . RUST . . . BRAZING FLUX REMOVED

FREE Advisory Service

Having difficulty with SURFACE PREPARATION of war items? Want SPEED . . . LOW COST . . . BETTER RESULTS in pre-cleaning operations? Then take advantage of successful Oakite experience NOW! WRITE US about your problem . . . our entire chemical and engineering facilities are *yours*—without cost or obligation.

OAKITE PRODUCTS, INC., 32F Thames Street, NEW YORK 6, N. Y.

Technical Service Representatives Located in All Principal Cities of the United States and Canada

OAKITE CLEANING

operating under safe conditions, although still crude insofar as production was concerned.

Inside of a month the superintendent had built an ingenious conveyor which dipped and dried the pieces—practically an ideal set-up for the type of work he was doing. I always felt that this superintendent must have been a very good and righteous man, for the Fates were indeed on his side.

If a fire had started in that room, as it was when I first looked at it, everything would have been consumed quickly—so fast, in fact, that probably the workers could never have gotten out alive.—M.H.

Metal Cleaning

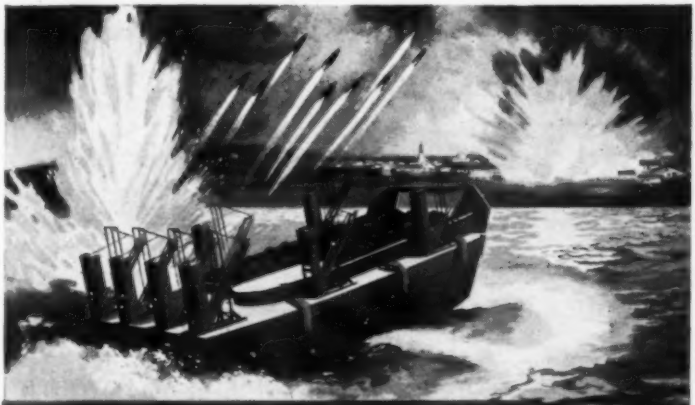
THE first step to be taken in any product painting or finishing job is to thoroughly clean the surface (if it is not already freshly cleaned). Every day large quantities of paint are applied to metal surfaces that are not properly cleaned of the slight film of oil, grease, shop dirt, sweat stains, rust, mill scale, etc.—and then later, after the use of much paint, plus the cost of putting it on, someone finds that the protective coating isn't holding onto metal the way it should. It may crack, blister, flake off, or rub off at slightest contact with another surface.

Unthinking and uninformed persons will blame the paint; but men who know will tell you truthfully that there can be no satisfactory lasting bond between a metal surface and its primer coat unless the metal surface is clean, dry and at somewhere near room temperature when the primer coat (properly conditioned) is applied.

Some shops clean their metal parts and products with naphtha, gasoline or thinner which, with soaking and washing, is better than no cleaning at all. This kind of cleaning often leaves a slightly oily film or some other type of very thin film that is undesirable. Another method of cleaning is to run the parts through a vapor degreaser. This is effective for the removal of oil and grease. However, according to my experience, it does not completely remove smudges of dirt or drawing compounds which have gone through heat treatment, or rust or scale.

A method of cleaning frequently used consists of dipping metal parts into a hot solution of mild alkaline cleaner. This cleaner should be a little stronger than strong soap. We use such a cleaner, making our solution up in the proportion of about 4-oz. of cleaner to each gallon of water. After dipping the parts in this cleaner, we rinse them in clean water and dry them thoroughly. This cleaner removes grease, oil and dirt smudges but, of course, it has no effect on rust. A combination of solvent cleaner and vapor helps a great deal where the oil and grease are heavy. Then one can follow with the alkaline cleaner and rinse.

To remove mill scale or rust from iron and steel parts, it is advisable to pickle them with a sulphuric acid solution, or with some other pickling agent. Of course, you must paint or treat these articles almost immediately afterward, or you will find that a new rust film will form again. It is well to see that the pickling tank is agitated frequently and to make sure that fresh acid is added from time to time to keep the solution up to strength. The entire pickling bath will have to be discarded after a time and replaced with a fresh solution.—J. G. STIEGLER.



BERRY-FINISHED ROCKETS

"Blast Japs Loose!"

Navy rockets, one of the most "production-pushed" items on today's munitions program, are finished with Berry Brothers' "production-pushing" specification finishes! Three coats in 15 minutes! No "bottle-neck" on the finishing line here!

The finishing system on one conveyor line rocket job is a spray coat of Berry Brothers' 3-183 Primer, air-dried five minutes—following with a spray coat of Berry Brothers' 3-67F Olive Drab, infrared baked for three and a half minutes—and concluding with a second enamel coat, infrared baked for the same length of time.

There are only two handling operations—on the conveyor and off.

Do you need to speed up production? Is your finishing setup too involved? Too many handling operations? Feel free to utilize our production experience. Write our industrial finishing department.

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Paints · Varnishes · Enamels · Lacquers

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SEE OUR INSERT IN SWEET'S NEW PRODUCT DESIGN FILE

QUALITY FINISHES SINCE 1858

WITH THE European war ended and a return to more civilian production at hand, reconversion becomes a most important consideration for every manufacturer. As war contracts are cancelled many companies will scramble madly for something else to manufacture. Some concerns have no set postwar plans; no clear cut ideas as to how things must be accomplished. These companies will be handicapped in competing with the well-organized concerns that have already planned for the future.

It is true that, until recently, the Government was not too enthusiastic about postwar planning, but now that the war in Europe is over, more definite cooperation is being extended to postwar plans for production of civilian goods.

Concerns Whose Production Will be Completely Changed

Reconversion poses a big problem to many companies who had changed their production completely to cooperate fully with the war effort. They have to plan for the future in two ways. First, they must decide what they will manufacture; and second, they must plan for the necessary equipment, materials and personnel to do the work.

BY CHARLES D. TOWNSEND
Process Engineer

If the plant is changing its products, much of the equipment needed can probably be secured by utilizing war production equipment which is now or soon will be available for civilian production.

Many companies, after making extensive surveys of various markets and finally deciding on a product, are already well into reconversion. How is this done? In many cases it has been easy. A plant using its own equipment, plus a considerable number of Government owned war production units, makes plans for the future around some of this equipment.

First, a complete survey of all equipment is made, noting particularly the age and condition of each piece of machinery. A projected postwar market is decided upon and the necessary equipment to meet these plans is listed. When these two programs are completed, they are compared, and all neces-

● The fine performance of Leading Jobbers in building an efficient and economical national distribution of merchandise and equipment in years gone by is a matter of record...Their accomplishments in allocating critical consumer goods during severe shortages, and extending available supplies in the fairest possible manner is a compliment within itself...Greater and more exacting demands than ever will be placed on these Jobbers postwar, and experience tells us that every requirement will be fulfilled...Three good reasons why Electric Sprayit Company is glad that the finest products we have ever made will reach national distribution through these sources.

sary equipment for postwar plans is spotted on the first list. Some of the equipment is company owned and some of it may be Government owned facilities which the company can purchase.

Next step is to plan for an efficient manufacturing plant. Management may decide on using the present buildings or some other establishment nearby. Once the decision is made, the floor plan must be laid out with considerable skill and care. Keep always in mind that after the Japanese war is over, costs must be cut to the bone if you expect to meet competition.

Plan an Efficient Layout For Economical Production

Costs start with plant layouts. If the layout is not streamlined efficiently, the cost of handling will eventually cause the manufacturer to lose money on his finished products, or compel him to ask a higher price than his competitors. Always remember that the handling of a product is non-productive and is an added expense if it is in excess of the minimum amount necessary to move product through the manufacturing processes and on to the shipping department.

Having completed the production layout it is then desirable to compare future requirements with present methods. Make plans to re-arrange any equipment that can be moved. Always work to the master plant layout. It may not be possible, in all cases, to do this moving in one step. Production must be maintained for the war effort.

It is suggested that, where possible and practical, a company move into the new plant only such equipment as it decides to use in its postwar program. This means that the departments will be ready to operate with the equipment that will become company property, and the plant will not have to wait for the Government to dispose of certain equipment to clear enough space to install the proper layout.

Where Duplicate Production Lines Are in Operation

In some establishments it has been possible to set up two units of production for war work. One unit contains equipment laid out efficiently for postwar use. The other contains equipment which will be turned back to the Government after the war.

For example, in one cleaning department new methods have been employed during the war, but the equipment was not properly located to be 100% efficient. Plans were made for the department in the future and the proper layout was established. It was found that much of the equipment now in use would not be required. However, several pieces of Government equipment were needed for postwar plans. Rearrangements were made and improved methods were installed in the new layout. The remainder of the equipment was used to keep war production items moving, but as cut-backs take place this equipment will be removed and the cleaning department will be ready for postwar operation without future changes.

Manpower Requirements for Effective Reconversion

A careful study of manpower requirements must be made when plans for reconversion are under way. Remember, it will be necessary to absorb a certain number of returning service men who once worked for the company. Many will want their jobs back and some of these men will be physically and mentally handicapped. Make

VITA-VAR METAL FINISHES

PROTECT in war as in peace!

TODAY, Vita-Var Product Finishes protect equipment, vehicles and armament used by the Armed Forces. Today, we can take care of your requirements of finishes for the Armed Forces.

TOMORROW, when you convert to civilian production, Vita-Var Product Finishes will deliver the same high-quality protection for all products.

Write for the Vita-Var Product Finishes Folder on metal, wood and other finishes.

VITA-VAR CORPORATION

PAINT ENGINEERS SINCE 1888 • NEWARK, NEW JERSEY

plans for them in your postwar program. Most of the veterans will be able to do their job with the aid of improved equipment such as new handling devices, conveyors, automatic feeders, etc. This equipment will be an asset to the company as well as helping the returned soldier to do a better job.

New Materials, Supplies and Methods Enter Postwar Picture

Many new surfacing materials are now being used for war production. Plastics of all types will enter the finishing field in full force. Metal finishing departments must keep this in mind when planning for reconversion. For instance, a new styrene-resin mixture is now being used for the sealing of aluminum and magnesium and castings. This coating was developed because tung oil was not available. Another case where necessity was the mother of invention. Many others will be forthcoming as war restrictions on their uses are lifted.

Another plastic inroad on finishing is the use of a phenolic resin for tank linings. This material will certainly affect the use of stainless steel, and metal finishers will have a new weapon to combat corrosion and a chance to compete with nickel and chrome plating.

Improved cleaning compounds and equipment are being placed on the market continually. Now is the time to try these items. Many of them will improve the quality of the finished article, and companies should plan to use them in the future. While it is still possible to experiment on product improvement for our war production, you will be gaining knowledge of what is the best method for the reconversion period and the postwar period to follow.

Film of Plastic

A NEW plastic known as "Plastipeel" is currently being used by West Coast manufacturers to form a protective covering and prevent scratches, mars, or corrosion on such materials as steel, aluminum and magnesium. It was developed by L. C. Wilson, chief plastic engineer for Duorite Plastic Industries, Culver City, Calif.

Plastipeel is a cold-pour material which can be applied like lacquer by spraying, brushing or dipping. It dries at room temperatures in approximately 20 minutes, leaving a film that is extremely tough and durable. Metals covered with the substance can be bent into numerous shapes without disturbing the film; yet the film can be easily peeled off with the fingernails, the same way cellophane can be peeled from a package of cigarettes.

The Plastipeel film is normally

Peels off like a film of cellophane.

"If I were in your shoes, I'd always remember women buy with an eye for beauty"

The lady has a point. Housewives control the family purse, and they buy for *beauty* as well as usefulness. Your products can have *extra beauty* if finished with *WAX-O-NAMEL*, the patented wax-impregnated enamel! WAX-O-NAMEL adds rich luster . . . affords *extra protection* against "shopwear" and handling. Merchandise finished with WAX-O-NAMEL keeps that "showroom" look longer . . . doesn't dirty readily . . . and, when necessary, cleans easier.

WAX-O-NAMEL can be applied and dried by any conventional method. It can be used on any surface suitable for ordinary enamel. WAX-O-NAMEL labels and tags will be made available. Teamed with your label, they will add *extra* sales appeal to your products.

This fall, Johnson's national advertising will carry a special message merchandising WAX-O-NAMEL to consumers — telling them to watch for it on the new home equipment they buy. Though not available at present, *now* is the time for you to get the WAX-O-NAMEL story. Write for complete information!

Buy and Hold Extra War Bonds!

JOHNSON'S WAX-O-NAMEL *is made by the makers of*

Trademarks Reg. U. S. Pat. Off.

JOHNSON'S WAX *(A name everyone knows)*

S. C. JOHNSON & SON, Inc., Product Finishes Department, Racine, Wisconsin

PLAN WITH DU PONT TODAY FOR FINISHING YOUR PRODUCT TOMORROW

Today's war needs still get first call at Du Pont. But if you have a peacetime product in the development stage, we'll be glad to plan with you for a finish that will give superior protection, greater beauty and top sales appeal.

Du Pont laboratories—the same that gave you DUCO and DULUX—have been busy formulating new wartime finishes to keep finishing lines at peak production. From this research will come the finishes of tomorrow—that will help rate your product a winner in the great market ahead.

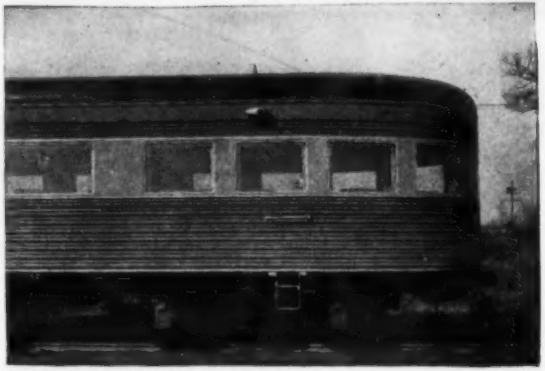
Whatever your finishing problems—whether you are turning out the tools of war or anticipating the products of peace—see Du Pont first. Our years of experience and practical "know-how" can save you time, trial and money.

IMPROVING ON NATURE—For many years, Far Eastern jungles were the only source of the resin used in high-grade varnishes and enamels. But in 1929, Du Pont Research developed a synthetic product, better by far than its equatorial cousin. This man-made vehicle added toughness and elasticity to the desirable qualities of hardness and high gloss. Its first important use was in DULUX, the finish that has since set new standards in durability

patting the products of peace—see Du Pont first. Our years of experience and practical "know-how" can save you time, trial and money.

than its equatorial cousin. This man-made vehicle added toughness and elasticity to the desirable qualities of hardness and high gloss. Its first important use was in DULUX,

NURSEMAID TO A BAKING OVEN—Finishing of air deflectors was bogging down production in an important war plant. An emergency call brought a Du Pont Finishes Engineer. After measuring temperature variations of the metal as it passed through the baking oven, he recommended a change in the finish formula. Result: Conveyor speed increased from 4 to 9 feet per minute; bottleneck eliminated—a typical demonstration of the Du Pont Finishes Service available upon your call.



WEAR AND WEATHERING of railway equipment makes finishes of proved durability an absolute requirement. And here, as in hundreds of other industries where finishing needs are specialized and exacting, Du Pont has the answer. If you have a finishing problem that needs competent handling, write to:

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

DEPEND ON DU PONT FOR BETTER FINISHES

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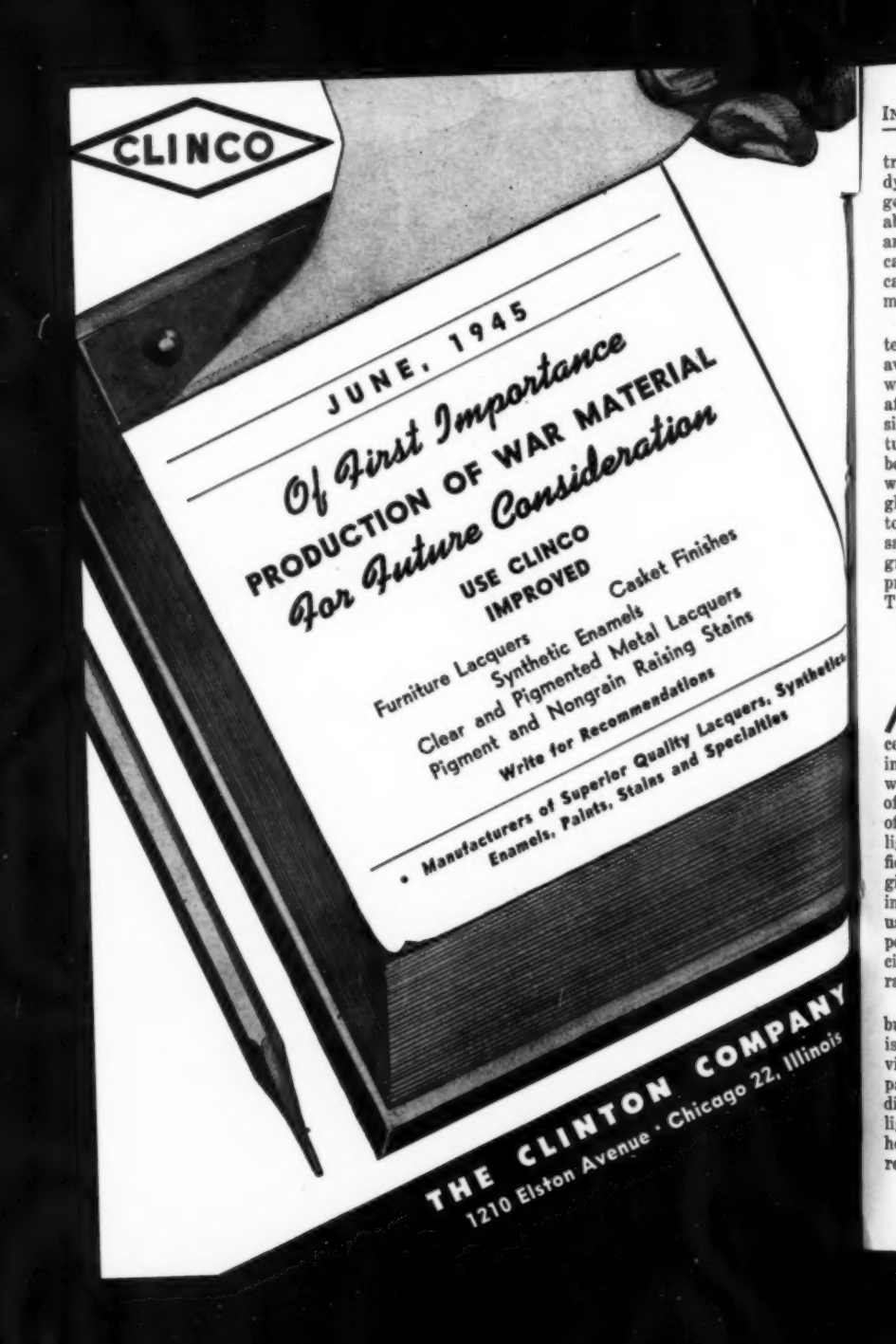
CLINCO
JUNE, 1945
Of First Importance
PRODUCTION OF WAR MATERIAL
For Future Consideration
USE CLINCO
IMPROVED
Furniture Lacquers
Synthetic Enamels
Clear and Pigmented Metal Lacquers
Pigment and Nongrain Raising Stains
Casket Finishes
Write for Recommendations
• Manufacturers of Superior Quality Lacquers, Synthetics
Enamels, Paints, Stains and Specialties
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transparent; however, it can be dyed to produce any color. Its rugged, non-porous composition enables it to prevent scratches, mars, and corrosion; and if necessary, it can be cured with heat so that it cannot be peeled from the base material.

Because it is considered a strategic material, Plastipeel is now available only to manufacturers with priority ratings. However after the war it should find a considerable market among manufacturers due to the fact that it will be ideal for protecting china, glassware, and other products with glazed or polished surfaces prior to shipping. Its cost is about the same as that of the oils and greases which are often used to protect metals from corrosion.—T. A. DICKINSON.

Infra-Red Lamps

AN INFRA-RED heat lamp is very much like the incandescent lamps used for home lighting; but infra-red heat lamps would be a very expensive source of illumination, though they do give off some light—just as ordinary light bulbs would be very inefficient heat units, though they do give off some infra-red rays. An infra-red bulb differs from the usual light bulb in this very important detail: It contains a special filament designed to deliver radiant heat rather than light.

Just a glance at an infra-red bulb in action tells you that there is something special about it. The visible rays are more yellow, compared to the brilliant white radiance of a well engineered bulb for lighting purposes. And where the heat of the lighting bulb has been reduced to a minimum, heat is the main function of the infra-red lamp, the rays of which on the skin produce an instant sensation of agreeable warmth.

It is usual for manufacturers to provide a reflector for better concentration of the infra-red rays. This reflector is best made of pure silver, and applied to the inside of the bulb. The bulb itself is often in the shape of a parabolic curve, which is the same curve utilized in automobile headlights, big searchlights on battleships, astronomical telescopes, and other optical instruments dealing with parallel rays of light. Thus the shape of the bulb assures that most of the energy originating in the filament is delivered to the surface to be heated.

That so much research and engineering can be bought so cheaply in a handy little bulb that anyone can use in the ordinary household outlet is one of the marvels of modern production. — WABASH BULLETIN.

Products of Tomorrow Exposition in Chicago in 1946

America's first annual "Products of Tomorrow Exposition" has been approved by Washington for an opening early in 1946. O.D.T. is expected to assign a date for the opening of the great International Exposition that will be some time between January first and March first, 1946.

Gardner Displays Co., of Pittsburgh, one of the nation's foremost exposition and exhibit designers, has completed a design for the group of buildings centering on the Chicago Coliseum.

Exhibitors will have few restrictions on the design of their displays. They will be encouraged to go the limit in originality and effectiveness. Many of the exhibitors' displays are expected to set the style for years to come.

The "Products of Tomorrow Exposition" will comprise two main divisions, consumer and industrial products, with the addition of others as the demand requires. Plans are complete for the use of a million square feet to accommodate every one with a product to introduce.

Conveyorized Setup for Painting M-38 Bombs

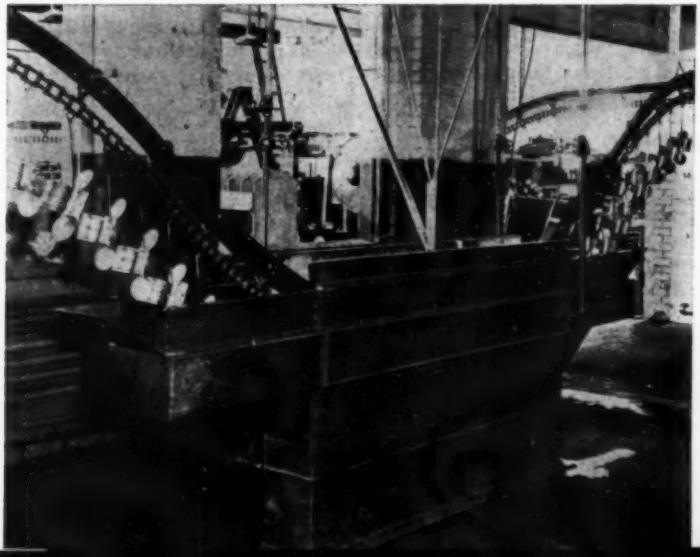
BY G. L. HEHL
General Industrial Sales Manager
The Sherwin-Williams Company

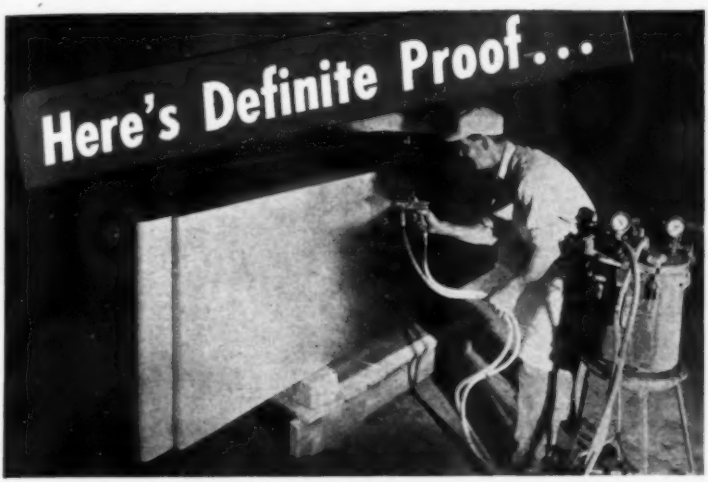
This excellent example shows how perfectly a well planned conveyorized setup takes care of cleaning all metal surfaces, applying protective coatings and quickly drying the paint on a two-coat production job.

ONE OF THE most lethal anti-personnel weapons yet to come out of this war is a three-purpose offensive bomb known as the "Butterfly." Dropped from bombers in clusters, these bombs can be armed to explode on contact, in mid-air, or they can be set to act as a delayed action booby trap. Opened in descent, they resemble the beauty of nature after which they are named.

One manufacturer of this novel bomb is Ryerson-Haynes, Inc., Jackson, Mich. The company is operating a continuous assembly

The first step in the finishing operation is degreasing. Here the Butterfly passes through a tank of solvent which washes from the metal all grease, perspiration and dirt that might have accumulated during the stamping, assembly and handling operations. From here on to the end of the finishing line no one handles these parts, which insures a perfect, even coat of finish.





...that ECLIPSE Saves Material

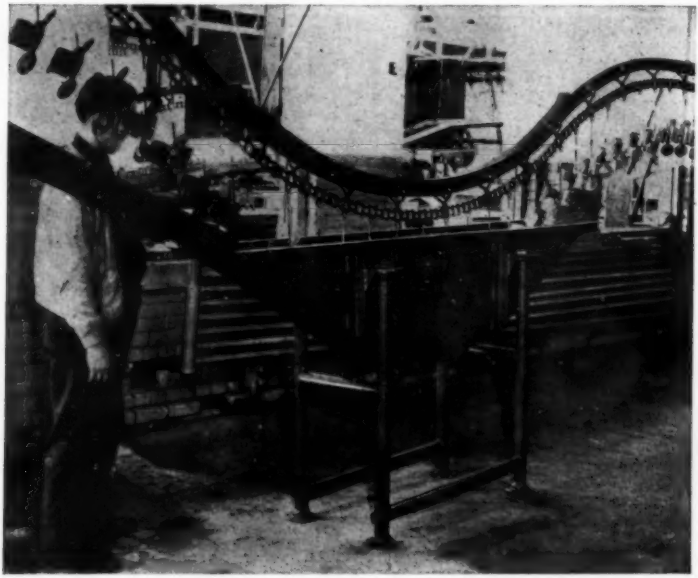
Proof that Eclipse Low-Pressure spray equipment saves material comes from many users in all fields and with all materials. Here is an actual case:

Under his own conditions, one manufacturer tested Eclipse equipment against his former high-pressure spraying equipment. He found that with Eclipse he could finish as much footage on seven gallons of material as he had been getting with eleven gallons previously.

You probably can save material in your own plant through the free services of an Eclipse Engineer. Write us the nature of your finishing problem and we'll have an Eclipse Engineer call.

ECLIPSE AIR BRUSH COMPANY
392 Park Ave. • Newark 7, N. J.

ECLIPSE



The Butterfly moves down the line and into the dip tank for its first coat of red oxide primer. This primer is a quick-bake material.

line of this munition and delivering unnamed thousands to Army Ordnance monthly.

Production methods on the M-83, as this 4-lb. bomb is officially known, are conventional. Parts that make up the "Butterfly" or outer covering over the bomb, which guide it in descent, are relatively simple stampings. After primary assembly by hand the parts are secured by rivets.

Designing Conveyorized Setup for Cleaning, Painting and Drying

Difficulty occurred, however, in the all-important finishing operation. The paint coatings were no problem. They are made according to standard Army specifications. However, the application of the paint coating, its drying, and the layout of the finishing conveyor line was a major problem. Engineers of Sherwin-Williams Co. and Ryerson-Haynes collaborated on the line layout; the hook needed to carry the "Butterfly" on the conveyor line; the timing for dipping, drying and baking, and the all-important schedule for mass production of finished pieces.

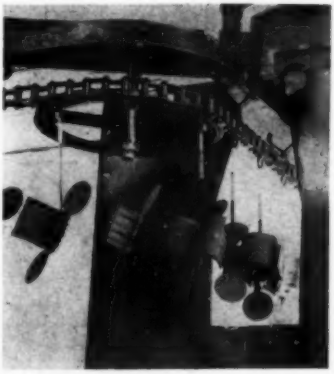
First, the "Butterfly" enters a degreasing tank where all oil, dirt and perspiration are washed from the metal surfaces. From here they are no longer touched by human hands, which insures a perfect bond for the two paint coatings and this prevents bubbles and blisters.

(Continued on page 84)

We're not magicians, but—
Through the ingenious use of available raw materials not a single Reliance customer has failed to receive all of the quality finishing materials necessary for full production despite all wartime difficulties and restrictions.
Here is proof of Reliance ability to "produce" under the most difficult conditions ever imposed on industry. Our customers' post-war requirements will be met with equal initiative and resourcefulness. May we help you too?
Rely on Reliance

The first finish coat is red oxide primer. This is applied as the "Butterfly" passes through a dip tank. Then comes the first bake in a small infra-red oven suspended from the ceiling along the conveyor line. The oven is only 5-ft. long, but thorough baking is assured by a primer that is formulated especially for such rapid action.

After traveling 20-ft. on the conveyor line the bomb cover is cooled sufficiently to take its second and final finishing coat of olive-drab lusterless quick-bake enamel. This too is applied as the "Butterfly" automatically passes by conveyor through a dip tank. A final bake in a 10-ft. infra-red oven, and the bomb covers are ready for Army inspection. *(Cont'd on page 86)*



These Butterflies have just received their first bake in a short 5-ft. infra-red oven, following application of the primer coat. Butterflies are cool enough to dip in second and final coat by the time they travel 20 ft.

Final finish coat of olive drab quick-bake lusterless enamel is applied as Butterflies pass through the dip tank at right. The bomb covers move down the conveyor line about 20-ft. and enter an infra-red oven for the second time, to take the final finish coat. This oven is twice as long as the oven that baked the primer coat. Next comes final inspection and packing.

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To create the true masterpiece talented artists employ models instead of depending upon memory or imagination.

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Thanks to the teamwork of Ryerson-Haynes engineers and the paint company's finishing experts, these vital bombs roll off the finishing line at the constant rate of eight finished pieces per minute, a good record for any finishing operation.

Alcohol From Wood a Reality

CONSTRUCTION of one of the world's largest, and America's first, commercial plant for the production of ethyl alcohol from sawdust and waste wood by the Scholler-Tornesch method, has reached a point where it is confidently expected that it will be in operation by July 1st.

The $2,250,000 project occupies a 14-acre site at Springfield, Oregon. It is the property of the Willamette Valley Wood Chemical Co., Eugene, Ore., which was formed by local lumbermen, themselves producers of large quantities of sawdust, the essential raw material.

An initial, daily consumption of 200 tons of sawdust, with a corresponding output of 10,000 to 12,500 gallons of ethyl alcohol is planned. The plant is designed to increase that output greatly and ample supplies of raw material are available to permit expansion.

The laboratory of the Oregon State College at Corvallis, under Dean Paul M. Dunn, is co-operating in a study of the qualities, deterioration under storage, and availability of wood waste. The relative qualities of planer shavings, hog fuel, sawdust, chipped slabs, as potential raw material, are being investigated.

Production on a commercial scale of ethyl alcohol, lignin, and other derivatives through the acid hydrolization of wood is new to the United States, but it is a well-established industry in Germany and one on which much of the German war economy has been founded. The processes and patents are also being used by Italy and Japan.

Industrial alcohol in the United States has been derived in the past largely from blackstrap molasses brought here in tankers from the Caribbean. The requirements for industrial alcohol, multiplied by war, strained the capacity of the established facilities. At the same time the lumber industry was producing vast quantities of potential raw material for alcohol—sawdust—which has little or no commercial value in itself.

The Timber Engineering Co. and the U. S. Forest Products Laboratory cooperated to adapt the German Scholler-Tornesch process to American conditions, the practicality of which was demonstrated in a pilot plant. The Willamette project is the realization by the lumber industry of another of the vast potentialities of the American forests.—N. L. M. A.

Spray Painting School for Industrial Finishers

The DeVilbiss Co., Toledo, Ohio, will hold four one-week courses for industrial finishers in the second half of its 1945 School of Spray Painting. Sessions starting July 16th, Sept. 17th, Oct. 15th and Dec. 10th, each covering the same classroom instruction and shop work, will be free to users of DeVilbiss spray painting equipment.

Industrial finishers should write for reservations in any class at least two weeks in advance.

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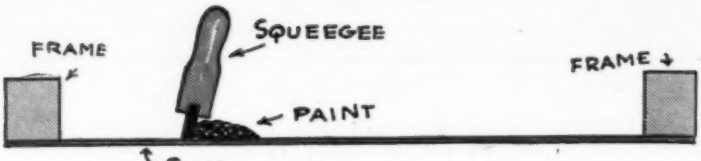


This cross sectional elevation shows how the squeegee tool is used to drag process paint across the screen stencil, during which time just the right amount of paint is pressed through the open mesh of the stencil and onto the surface of work positioned under the silk screen.

Silk Screen Stenciling

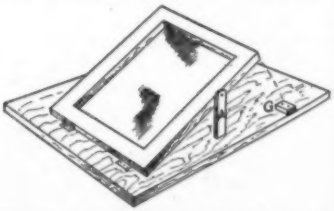
BY BERT ZAHN

SILK-SCREEN STENCILING is being used more and more extensively for reproducing decorative designs, printed instructions and various other markings on manufactured products. Briefly, the process consists of forcing special paint through the open meshes of a framed screen, part of which is filled in solid so that paint can only pass through those areas of the screen that have been left open in accordance with the design to be reproduced.

The possibilities of the silk-screen stenciling process are almost unlimited, and it is employed in many industries that do product painting and fine decorative finishing. Silk-screen stenciled jobs, properly applied, look very professional—but to accomplish this desirable result requires equipment that is well designed and in perfect condition, as well as a skillful operator.

If the work includes only signs, posters or flat work, a regular unit such as described and illustrated in this article will be sufficient. If you have a special surface, an irregularly shaped object, or a surface that is too large or cumbersome to be placed beneath the hinged screen described here, then the screen unit can be specially designed and built to be used on, or taken to the object to be imprinted. The type of surface is of no great importance since the silk-screen process can be arranged to imprint practically any surface regardless of its size or shape.

In this series of articles I will explain the making of the silk-screen stencils, as well as certain special uses, starting with the simple basic unit that is necessary. The details of preparing the sten-



Simple wood-frame stencil screen hinged (with removable hinge pins) to its plywood base. Bar A, which is loosely pinned to edge of stencil frame, serves to hold the stencil away from base when operator is putting in and taking out the work being stenciled. On close accurate work, side guides like the one marked G can be fastened to the base.

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ciling frame, which is usually referred to as the screen, are the same as are used for all silk-screen stencil work.

Although there are many methods of making the stencil, including photographic, lithographic, hand-cut-in, etc., I will describe the one most universally used, as well as the simplest. It is the film-cut stencil.

Materials and Supplies for Silk-Screen Stenciling

Materials and supplies for silk-screen stenciling include the following:

1) A flat base and wood frame for stenciling flat work.

2) Stencil silk—either imported or domestic silk 10xx or 12xx mesh, or a good grade of organdy. This is stretched and tacked onto one side of the frame.

3) Tapes for covering tacks or staples and for "finishing" the inside corners of the screen and frame.

4) Register guides to hold in position the panel or article which you are stenciling, so that each impression will be in exactly the same position.

5) The film or stencil. Since there is only one lacquer sheet film now on the market, it being patented, all instructions will deal with the use of "Nu-Film".

6) The squeegee for pulling a supply of process paint across the screen stencil, at the same time pressing it through the open mesh of the screen. Squeegees are obtainable from any process supply house.

7) Process colors (special paint for silk-screen stencils). Different types of materials are necessary for various surfaces and uses. For regular use, I recommend Poster Silk Screen (flat). For exterior use, or where the surface is subject to wear or handling, I prefer high gloss or synthetic material to produce a high gloss finish.

8) Cutting tools. A stencil knife is used to cut the film. Also, you will need triangles and compass, as well as thumb tacks.

Wood Frame Over Which Silk Screen is Stretched

Dimensions of the wood frame, to which you fasten the silk screen, will depend upon the size of the stencil design to be reproduced. Straight-grained, well-seasoned soft white pine is an excellent wood to use for making stencil frames, because it is easy to work and holds its shape; in other words, it doesn't warp. However, other well-seasoned soft woods can be used.

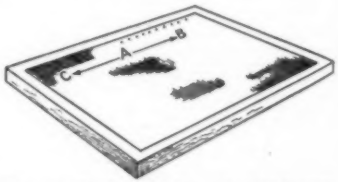

Fig. 1—Begin tacking at mid-length of one edge (A) and continue toward one end (B); then start at mid-length again and continue to other end (C).

Good mechanical judgment and certain other factors will determine the proper cross sectional dimensions needed to give the necessary strength and stability to the frame—whether it can be, say ¾x2-in. (for small frames) or 2x2-in., or whether it had better be 1¼x3-in. (for larger frames). The corners will need to be joined securely so the frame will remain rigid, square and flat while in service.

The silk screen must be fastened to its wood frame at all four edges with carpet tacks or small staples. Cut the silk screen about 2-in. long-

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er and 2-in. wider than the inside dimensions of the wood frame to allow a 1-in. overlap all around. Place the silk screen carefully over one side of the wood frame, positioning it so the threads in the weave run parallel with the sides of the frame.

Fastening Silk Screen to its Wood Frame

When you are ready to begin tacking the screen to your wood frame, place one edge in position and begin tacking (or stapling) at the mid-length of one edge, as at *A* in the drawing marked Fig. 1. Continue toward the end until you are within 1-in. to 1½-in. of the corner. Then start again at the middle (*A*) and work toward the other end or corner (*C*). Do the same on the opposite side, and repeat at each end of the frame. Then tighten and tack the corners. This method of tacking the silk screen to its wood frame equalizes the stretch, keeps the screen straight and flat, and prevents any creases or wrinkles at the corners. Trim off the surplus silk screen edges that extend beyond the line of tacks.

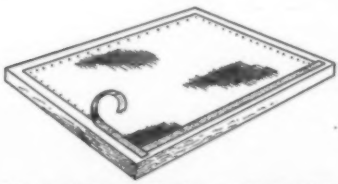

Fig. 2—After shellacing or lacquering the tacked edges of silk screen, cover the line of tacks and exposed edges of silk screen with adhesive tape.

Fig. 3—Also tape the inside edges of frame and silk screen. This is the top side of silk-screen stencil.

To protect the edges of the silk screen from tearing away from the tacks and to prevent paint from seeping through onto the base or copy, first apply a coat of shellac or lacquer over the edges of screen along the line of tacks. This will strengthen the edges. Then cover the line of tacks with tape, as shown in Fig. 2. Also apply tape to the inside edge of the frame and silk screen as shown in Fig. 3.

For stenciling designs or printing on flat cardboard or panels, the silk-screen stencil frame is usually hinged to a flat plywood base which is a few inches larger in overall dimensions than the outside of the silk-screen frame. It is customary to hinge the silk-screen frame to its base with hinges that have removable pins like door hinges, so the frame can be easily and quickly detached from its base. This permits the silk-screen stencil to be easily cleaned, repaired, changed or interchanged with other stencil frames. It is a convenience in many ways.

Film Knife-Cut Stencil; Preparatory Work

There are many methods of preparing a stencil for silk-screen stenciling or printing. In this article I will describe the Nu-Film knife-cut stencil, as it is the simplest and most proctical method in use today. A Nu-Film stencil sheet is a thin prepared film on a sheet of translucent backing paper. The backing paper acts only as a temporary carrier of the film until such time as the film is adhered to

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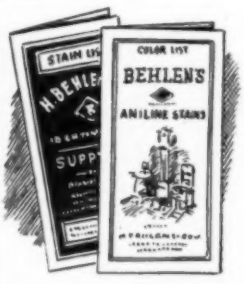

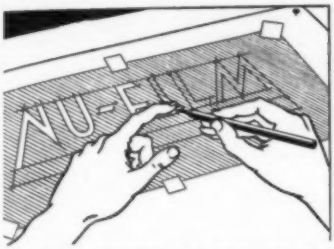

Fig. 4—On straight line cuts, the cutting should extend beyond the intersections or corners of the design.

the silk screen, after which the backing paper is removed.

Thumb tack your original drawing to a drawing board or work table. Cut a piece of Nu-Film large enough to cover the first color. Decide which color you want to stencil first. It is good practice to print the light color first and follow later with the dark color.

Place the piece of Nu-Film over the original drawing with the film side up, and fasten down the corners with masking tape so that the film will not shift or change its position. The film is transparent and you can see the original drawing underneath. The idea is to cut and peel out those portions of the film that form the first color you want to print.

Cutting the Film to Make Clean-Cut Stencil

Use a sharp stencil knife and, in a tracing manner, cut through the film to the backing paper. Do not cut through the backing paper. (Where the preceding color or colors are to come next to the first color selected, cut this portion 1-16-in. larger, so as to allow overlap of following colors).

Use light pressure in cutting. If you bear down hard you will cut into the backing paper. A few hours of practice cutting should be sufficient for anyone to get the feel of it. On straight line cuts the cutting should be carried out beyond the corners of the design, as shown in Fig. 4.

After the cutting has been completed, strip out all of the film from that portion of the design which is to appear open on the screen, see Fig. 4. In all large open spaces from which film has been stripped, cut a slit through the backing paper to allow the escape of air during the adhering operation. Examine the cut film to make sure that no small pieces of film or dust particles have been left on it.

Adhering Stencil Film to Silk Screen

If a new piece of silk has been stretched on the frame, it is good practice to wash the screen with water and hand soap, and rinse well with clean water. This will remove any sizing that may be in the silk, and it insures good adhesion of the film to the silk.

Place the prepared stenciling frame so it engages its hinges on the printing table. Place the original drawing, with cut film for first color, in the register guides.

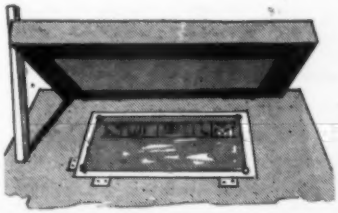

Fig. 5—Showing the cut stencil film positioned on base, ready for operator to let down the silk-screen frame and begin the work of adhering the stencil film to the silk screen.

The film can be held in position on the original drawing by tape in corners. Adhering the film in this manner will insure perfect registration of all colors, see Fig. 5. Lower the frame onto the film so that the silk comes in contact with the film. Close contact of the film and silk is necessary. Either have someone hold the screen down or place weights on the corners of the frame so that you maintain the close contact of the silk and film during the adhering operation.

Take two pieces of rag, one large and one small. Cotton rags from the type of goods used in undershirts or underwear are preferable. Wet the small rag well with adhering liquid No. 22. Hold the wet rag in one hand and the larger dry rag in the other hand. Start in one corner and wet a small portion of the screen with a single stroke, not more than 6-in. long, as shown in Fig. 6. Dry it immediately with a light rubbing motion with the dry rag, see Fig. 7. Continue rubbing lightly with the dry rag until you see that all of the adhering liquid No. 22 has evaporated. This takes about 10 seconds. When this is done you will note that the film is adhered to the silk.

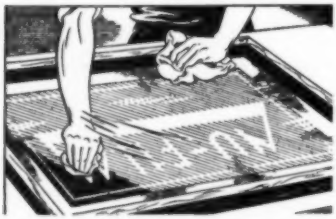

Fig. 6—Beginning what it takes to make the cut stencil adhere firmly to the silk screen. Operator is applying adhering liquid, starting at the corner.

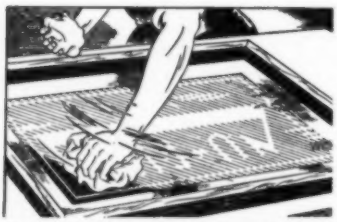

Fig. 7—Continuing the operation of making a cut stencil adhere to silk screen. Operator uses dry rag to wipe dry the wet adhering liquid which was applied as shown in Fig. 6.

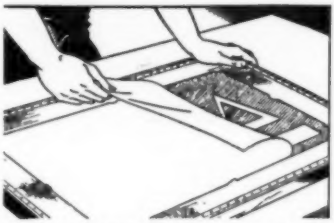

Fig. 8—Removing the protective backing paper from a cut stencil after the stencil has been properly adhered to the silk screen.

Continue in the same manner until the entire film has been adhered to the silk. Re-wet the small rag as often as is necessary. Always start from one side of the screen and continue in the same direction to avoid wrinkles.

When the entire sheet of Nu-Film has been adhered, take a thin straight-edge or ruler, slip it between the Nu-Film backing paper and the original drawing, and free the screen from the original drawing by loosening the tape. Remove the pins from the hinges and turn the frame over (upside down) with the backing paper side up. Allow the film to dry about 10 minutes.

Start in any one of the four corners and carefully loosen the backing paper from the film with your finger nail. Slowly peel off

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the backing paper. If the film was cut and adhered according to instruction, the backing paper will come off easily, without any corners or edges of the film being loose. (Fig. 8).

Should any portion of the film be loose or improperly adhered, do not remove the backing paper completely, but turn the screen over again and, by wetting and drying the loose spot, proper adhesion will be obtained.

When the backing paper has been completely removed, if there still are some loose places, turn the screen over with the film side up. Take the wet adhering rag and carefully dampen the loose part from the underside of the screen and pat down from the film side with your finger. This will complete the adhesion. Do not at any time over-soak the film with adhering liquid, as this will dissolve the film and spoil the sharp edges of the design.

Fill in the open mesh of the silk between the film and the wood frame with masking tape. Clear lacquer screen filler can also be used if it is available. Hinge the screen to its base and you are now ready to print the first color.

Squeegeeing the Color Through Screen Stencil

The process color (paint) is forced through the open parts of the film stencil onto the surface to be stenciled, by use of a squeegee. A squeegee is a thick rubber blade inserted into a wooden handle. The squeegee must be wider than the design you are printing, but at least 1-in. narrower than the inside width of the stencil frame.

Stack the stock, which you are going to stencil, on the table within easy reach and place the first panel or sheet under the screen and move it up to the register guides. Release the lift bar and lower the screen into level position. Draw the squeegee across the screen by tilting the squeegee and pressing down firmly. One pass across the screen should be sufficient.

To produce good stenciling, the rubber blade must be straight and its edges must be sharp. These edges become dull from constant use and should be sharpened by drawing the squeegee across a piece of emery cloth or fine sandpaper that has been thumbtacked to a level table top.

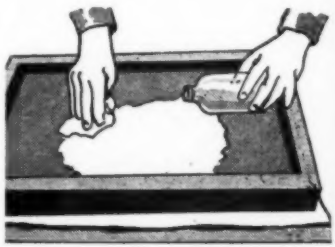

Fig. 9—Preparing to remove a used or unsatisfactory stencil film from the silk screen, so that it can be replaced with another cut stencil. Note flat paper under screen. Operator pours in a slow-evaporating lacquer solvent which dissolves the film.

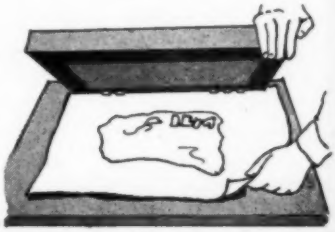

Fig. 10—After the treatment shown in Fig. 9, you lift the silk-screen frame and find that the dissolved film has transferred itself from the silk screen to the paper which was placed underneath it.

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SYNTHETICS AND
SPECIAL COATINGS
FOR ALL SURFACES

United Lacquer Mfg. Corp

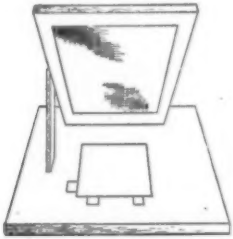
General Offices, Laboratory, Factory: LINDEN, N. J.

NEW ENGLAND MFG. DIVISION, EVERETT, MASS.

BACK THE ATTACK! BUY WAR BONDS!

When stenciling with colors, be sure to print the light colors first; otherwise a transparency will result in overlaps.

A good brand of showcard colors, with Academic Process Extender, dry rapidly. Where you have a small run of only 25 to 50 prints, a drying rack is not necessary. Lay your prints out on a table as you screen them and allow 30 minutes of drying before stacking. Where and when excessive humidity exists, a longer drying period may be required.



Hinged screen stencil in raised or "open" position for withdrawal of one piece of stenciled work and the positioning of a new piece to be stenciled.

Cleaning the Stencil; Removal of Film Stencil

After you have completed printing of the first color, take a small piece of cardboard 2-in. square and scrape all paint off the squeegee and out of the screen. This paint can be saved and used on another job. Remove the screen from its base hinges and wash the remaining paint from the screen and squeegee in a wash sink, using warm water.

The same silk screen may be used over and over again, merely by removing the Nu-Film stencil from the silk. This can be done as follows: Lay several pieces of newspaper or other paper on a table and place the screen on top of the paper so that the Nu-Film is in contact with the paper. Use a large rag soaked well with Silk-Screen Cleaner No. 05315, and rub over the film portions of the screen, keeping the rag well saturated. After a few minutes, take hold of the paper and pull it away from the silk. It will take all of the film with it. Refer to Figs. 9 and 10.

Take two clean rags, wet them with Silk Screen Cleaner No. 05315 and wash the silk well, working on both sides at the same time. Dry the silk with a clean rag and you are ready to use the silk screen for the next color or for another job.

Second and Succeeding Colors

The procedure for making a stencil for the second color is the same as for the first color. You cut a piece of film and place it over the original color drawing. Cut and peel out all of the film that represents the second color.

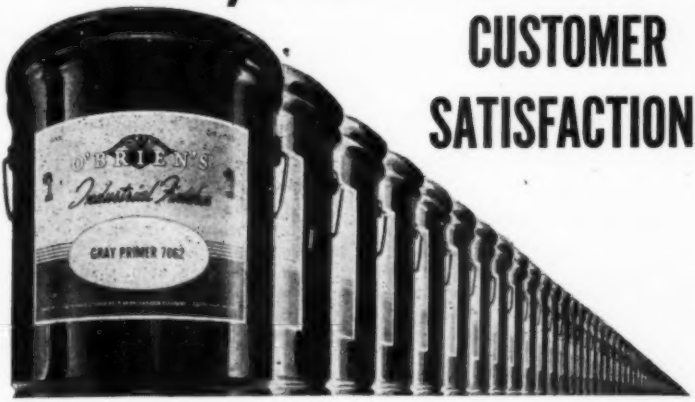
When you adhere the film to the screen, you follow the same procedure as on the first color. By placing the original drawing with the cut film in the registration guides, the second color will be adhered to the screen in exact relation to the first color, and the registration will be perfect. If more than two colors are used, repeat each operation until reproduction of the original design is completed.

(To be continued)

Better Paint Job Permitted on Machine Tools

The War Production Board has revoked Limitation Order L-103, restricting finishing of metalworking equipment. The order, which was issued April 27, 1942, and amended November 29, 1944, permitted only one coat of primer and not more than two coats of paint, enamel or lacquer, while fillers were prohibited.

327,600 GALLONS OF CUSTOMER SATISFACTION



We have sold 327,600 gallons of Gray Dipping Primer 7062—without receiving a single complaint about its performance! Few industrial finishes can equal its record of consistent excellence and complete customer satisfaction. This unusual baking primer actually flows "backward" after draining, levelling out to a smooth, clean surface—no "bead." Non-skinning, non-settling, extremely stable in the dip tank. Performs beautifully under lacquer, synthetic enamels and government specification finishes. Write us for its record.

O'BRIEN VARNISH COMPANY, SOUTH BEND 21, INDIANA

O'BRIEN

INDUSTRIAL FINISHES

SINCE 1875

NOT THE MOST – JUST THE BEST

Questions and Answers

Machine Tool Colors

I have read with interest the short article on page 129 of your April 1945 issue of INDUSTRIAL FINISHING entitled, "How Color of Machines Aids Workers". I would appreciate your advice as to what colors have been found best suited for the purpose mentioned, in place of the standard Machine Tool Gray Finish.

I would also like to know, if you have the information, whether the machine tool builders who sponsored the present dull gray color are doing any work with a view to changing their standard from the dull gray to some other color. Any information you could furnish in regard to the above matter would be sincerely appreciated.—D. M.

We suggest that you read copies of the color illustrated booklets issued by The Arco Co. and the DuPont Co.; titles are "Color Power for Industry" and "3-Dimensional Seeing", respectively. Here you will see how light tones of green, tan and yellow are often used effectively for certain types and parts of machines, depending upon the kind of work for which they are used.

We do not know whether the machine tool builders as a group are sponsoring any change to colors other than the customary dull gray. However, several of the manufacturers of finishes are featuring special color combinations and suggesting that such a program makes for more efficient lighting as well as proving a production accelerator. Quoting from The Arco Co.'s book:

"The working areas of machines on which the same color material is constantly used are painted in a tone complementary to that of the material, to avoid fatiguing color monotony. Under ideal conditions, the bodies of the machines are painted in a color which, like the wall color, compensates for the color deficiencies in the lighting. Danger areas and control areas are, of course, indicated by colors of challenging contrast."—ED.

How Wonderful Are "Plastic" Coatings?

For many years we have been using a lacquer finish on the wooden parts of our chesterfields and lounges. This finish has proved to be satisfactory except for the fact that when dry it will show white under a blow or a scratch, and the finish seems to be a trifle brittle.

We have now been approached by a salesman who claims to have a product that is a cure-all. This product is said to be a plastic, in a clear finish, and by what he tells us it does not become brittle, will not show white under a scratch, and has other characteristics that will make it a universal finish as soon as it is available to all.

Please tell us what you can about this finish . . . Are there any advantages in the use of this product as compared to lacquer? The

Striking in a diagonal buffing line was made easier and in less time by using the correct type of "SCOTCH" Masking Tape. It was one of many places where this timesaver proved its handiness and value. Here's a feature about "SCOTCH" Masking Tape—give a workman a roll and he'll turn up with a dozen timesaving operations for you.

There are many constructions of "SCOTCH" Masking Tape. They vary in weight of backing, type of backing, type of adhesive and all are versatile in their use. Having the correct type to meet your requirements is important.

As the originator and the largest manufacturer of unified pressure sensitive tapes we have the know-how and unmatched experience to recommend the correct type "SCOTCH" Masking Tape to use for the greatest economy of operation.

Feel free to ask for a tape engineer to help you in making the correct choice.

"SCOTCH" TAPE for Masking... Holding... Sealing... Splicing... Reinforcing ... Identifying ... Protecting... Sandblasting.

3-M

MINNESOTA MINING AND MANUFACTURING CO.

GENERAL OFFICES: SAINT PAUL 6, MINN.

BRANCHES IN PRINCIPAL CITIES

"SCOTCH" is the trade-mark for the Adhesive Tapes made by M. M. & M. Co.

cost of our lacquer is $2.30 per gallon, while the plastic material is $6.30 per gallon.—C. B. Co.

We are not well acquainted with the characteristics or qualities of this particular product named in your letter. Our suggestion is that you purchase some of it and give it a trial. Or, you might use enough of it to finish up a few test panels and put these through various accelerated tests to learn what happens. This will give you definite and specific information, which is better than relying upon what somebody tells you.

In order to find out something further about this material named in your letter, we have made some inquiries about it. One confidential report, from a very well informed paint chemist, isn't encouraging. Excerpts from it follow:

"A few months ago, both the National Paint, Varnish & Lacquer Association, Washington, D. C., and the Detroit Better Business Bureau investigated the claims of the much-advertised, so-called plastic paints. I am sure that both of these organizations would make their findings available to you. Briefly, they found that these much ballyhooed products are no better than, and in many cases much inferior to, standard products of reputable manufacturers.

"Although many paints are plastic in one sense or another, no reputable concern today advertises ordinary paints as the wonder products of ten years hence. Some paints are, assuredly, made of plastic resins. None of these are currently available for civilian products. Many of the sellers of 'plastic paints' are new companies that have sprung up in the last two years or so. Their claims and prices are fantastic."—ED.

Sealed Tubes For Shop Orders

We are interested in obtaining more information about the waterproof, paintproof sealed tubes, which are used to carry shop orders on the conveyor through the washing and painting operations, as described in the April issue of INDUSTRIAL FINISHING, in the article, "Coating Small Parts for Aircraft".—X. Co.

Regarding the small tube which is used to hold the working orders, this tube was developed by one of the employees of the Douglas Aircraft Co. It has proved to be quite a time and money saver and has certainly expedited work in the painting department.

This tube is made from ⅞-in. Dural metal, and is 6-in. in length. It is sealed at one end and welded. When the working order is placed inside the tube, the other end of the tube is sealed with a No. 5 Braun synthetic rubber stopper. The welded end of this tube, in some instances, is pinched together and then welded; and a small loop, cut from the same material, is welded on top so that a wire may be run through the loop to hold the tube to the conveyor chain. In other instances, a small cap of Dural metal is cut and welded over the top of the tube.

At the open end, a Braun synthetic rubber stopper is always used, due to the fact that the chromic acid used in the paint has a tendency to eat away other materials that have been tried. Dural is always used in our tubes because metals, such as steel, could not withstand the acid in the paint.

Before this sealed tube was developed, two men and sometimes three were used in the paint shop

for . . .

PRIMERS

SURFACERS

LACQUERS

WRINKLES

SYNTHETICS

SPECIAL COATINGS

"Call on Walker"

We are in position to supply dependable protective and decorative coatings for surfaces of every description—developed and formulated for specific purposes, in the Walker laboratories and proved by actual field service. Let us assist you with your postwar finishing problems.

H. V. WALKER CO.

Elizabeth, New Jersey

MODERN PRODUCTION FINISHES

to match the shop order with the processed material after it had been completed. Now, the order is sealed in the tube and goes right along with the parts on the conveyor as they are being painted. When the parts are dry, they are taken off the conveyor and placed in boxes; the order is taken from the tube and the parts are on their way in a few minutes.—DOUGLAS AIRCRAFT CO.

Infra-Red Drying Finish on Wood

We would appreciate any information you can give us on the use of infra-red drying for paints and other finishes on small wooden parts.—K. T. Co.

In the application of infra-red energy to the drying of finishes on wood, we have found that, in most instances, the temperature must not exceed 140° to 145° F. If the temperature does exceed such limits then we develop blistering and pinholing in the finish because of the boiling out of both moisture and volatile resins from the wood.

Since the most beneficial effect of infra-red is the rapid rise in temperature, then there is hardly a real application in the wood industry. We can assure you, now that we are giving the furniture industry and kindred industries our attention, and we hope to have some definite answer for the wood industry in the near future.—C. M. HALL LAMP CO.

It is our intention to run some experiments to create some test data which we can use in supplying information on this subject. In the meantime, if you know of anyone who is doing any wood finishing with infra-red, we would appreciate having that information.—INFRA-RED ENGINEERS & DESIGNERS.

The infra-red drying of finishes on wooden objects or surfaces involves certain prob'ems not present in the drying of finishes applied to metal. When applied to a wooden material, the solvent in a finish is partially absorbed by the wood, with the result that care must be used in the drying operation to prevent the solvent from being driven out of the wood so rapidly as to cause blisters in the finish. This being true, the concentration of heat must be such that the temperature of the finish does not exceed approximately 150° F. The finish should be brought up to this temperature very slowly —on the order of 2½ to three minutes.

For producing the above temperature, 250-watt lamps located on approximately 15-in. centers, and at a distance of some 15-in. from the surface of the material, should be satisfactory. With this arrangement of lamps, lacquer would require about two minutes to dry. The varnish or enamel should be especially designed and carefully selected for the purpose. Any reputable paint manufacturer should be able to supply suitable material. Varnish or enamel probably would require some 20 minutes to dry. It is interesting to note that the same material, when applied to metal, can be dried in approximately five minutes. — WESTINGHOUSE ELECTRIC CORP.

Paint can help prevent accidents. Danger spots on machines can be painted so the operator can see where the danger lies; and factory danger zones can be identified by being painted in bright colors.

Telling time by the sun is just as reliable as old fashioned drying methods. But, to manufacturers who expect to keep up with tomorrow's competition . . . continuous, high-speed finishing . . . made possible only with controlled humidity forced drying . . . is a "must"! Already where KOCH Controlled Humidity Forced Drying Systems are in operation, increased production, plus virtual elimination of rejects, are reported.

Pioneers in the development of Controlled Humidity Forced Drying, KOCH engineers have a long line of successful installations behind them . . . and a readiness to get at your job before them.

Get the Facts Today . . . About

Controlled Humidity
FORCED DRYING

Systems . . . Engineered by

SEND FOR BULLETIN AB-37
CONTAINS COMPLETE FACTS

GEORGE KOCH SONS, INC.
INDUSTRIAL EQUIPMENT
EVANSVILLE 6, INDIANA

PHONE, WIRE OR
WRITE TODAY

Power Stenciling Machines

I read your artic'e on Screen Process Developments in the April, 1945 issue of INDUSTRIAL FINISHING, and would like the names of manufacturers of motor-driven squeegee stenciling machines using fountain-type paints.

I am also interested in obtaining some of the dye paste used on fabrics.—S. MFG. Co.

As far as we know the only available press of this type is the Kenney Press manufactured by Century Studio (Mr. Kenney) of 558 W. Washington, Chicago, Ill. This machine has been widely adopted throughout the Middle West and California and we have been given to understand that it has proved to be fairly efficient, although we have no personal knowledge of the machine in regard to its possibilities. We are sure that Mr. Kenney will be glad to provide you with detailed information, prices, etc., upon request.

We are sorry we are not in a position to supply colors for printing fabrics. For information on this item we suggest you contact our New York representative, Silk Screen Supplies, Inc.—NAZ DAR.

At the present time we do not know of any manufacturers of automatic silk-screen machines. However, you might write Shelburne Mfg. Co., Hannibal, Mo. We understand that they made such a machine and they may be able to take care of you.

You asked for information on dye paste to be used on fabrics. We have developed a material known as "Sherdye" which is of silk-screen consistency, and we are sending you a booklet on same.—THE SHERWIN-WILLIAMS CO.

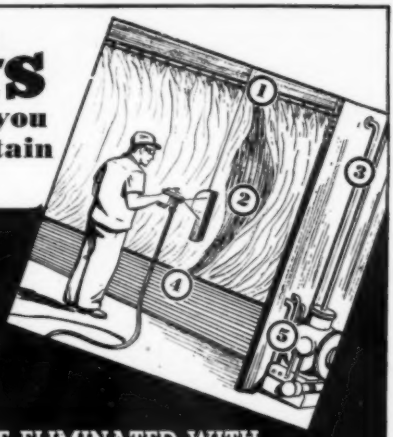
Kittinger Co. Awarded Star For Its Army-Navy E Flag

The Kittinger Co., Buffalo, N. Y., makers of furniture since 1866, has just been awarded a star for its Army-Navy E. This is the second production award in six months for the company. The award was made for efficiency and quality in producing metal wings for both transport planes and fighter planes. The company discontinued the manufacture of furniture three years ago, but will be ready to resume the making of quality reproductions and Colonial-Williamsburg reproductions when cut-backs come.

Los Angeles Branch of Detrex Moves to New Offices

New and larger Pacific Coast Region offices of Detrex Corp., Detroit, Mich., have been established at 318 W. 9th St., Los Angeles 15, Calif. This office, under the supervision of Mr. S. B. Crooks, Pacific Region Manager, functions as sales and service headquarters for the Pacific Coast and Rocky Mountain states. In addition to controlling division offices in the territory, the Los Angeles branch supervises all local stocks of degreasing solvents and standard metal cleaning machines. Direct customer service for Southern California is also handled from this office.

5 points to watch if you operate a water curtain spray booth



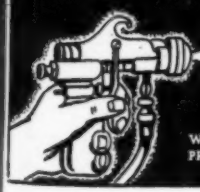
1 Plugged nozzles.
2 Water breaks.
3 Scale clogged lines.
4 Sludge in reservoir.
5 Loss of pressure.

ALL THESE CAN BE ELIMINATED WITH

Klarifiant

WATER WASH COMPOUND

Klarifiant gives the closest possible approach to perfection in the operation of water curtain spray booths because it ***eliminates scale formation*** . . . no plugged nozzles . . . no water breaks. Also ***peptizes pigment residues,*** further assuring absolute cleanliness of the entire hydraulic system.



THE DuBois Company
CINCINNATI 3, OHIO

WAREHOUSE STOCKS IN ALL PRINCIPAL CITIES.– SERVICE MEN EVERYWHERE

Letters from I. F. Readers

(Continued from page 9)

ing conveyor; also type and makes of conveyors, are desired.—M. Co.

Look over several recent copies of Industrial Finishing and you will find the information you are seeking.—ED.

To Start Furniture Plant

We are figuring on building a modern furniture plant when materials are available, and would like to get recently published articles about modern furniture factories. I would also appreciate receiving information as to the subscription rates to your publication.—M. & S. Co.

Likes "Industrial Finishing"

I recieve a great deal of benefit, as well as personal pleasure from the articles and advertisements in INDUSTRIAL FINISHING. Especially helpful was the article on Spray Gun Air Caps. Only through the medium of a magazine such as yours can a man keep abreast of the times in a field as constantly changing as the finishing business.—L. CHRISTINSEN.

Flock Finishing

We would like to get a copy of the October 1944 issue of INDUSTRIAL FINISHING, which contained a feature article on finishing with flock. We contemplate doing considerable work of this character and, since we are not familiar with the materials and processes involved, we would like to obtain as much information as possible.

If you can give us sources of supply for flocking materials and binders, we will appreciate having this information.

Are there any special booklets or magazines devoted to this type of work? If so, may we have the names and addresses of publishers?—W. A.

We note, from your "Letters from Readers", that you are very generous in furnishing information to many people who write you. We would like to take advantage of your generosity and inquire if you will be good enough to send us the names of manufacturers and jobbers who make and sell materials for silk-screen work. At the same time, we would like to have the names of manufacturers of flock.

If it is not asking too much of you, we would like also to have tear sheets of the feature article, "Finishing With Flock", as published in the October 1944 issue of your magazine. We overlooked this article when it was published and are unable to locate our October issue.—R. W. Co.

Information supplied.—ED.

Silk-Screen Stenciling

Referring to your magazine, INDUSTRIAL FINISHING, we wish you would furnish us with the names of some companies that can give us information on silk-screen stenciling.—W. & SONS Co.

Kindly send all available information concerning silk-screening methods and materials.—V. P. Co.

J. M. Warnimont Advanced by Sterling Tool Products Co.

In an organizational change, J. A. Proven, Vice President and General Sales Manager of Sterling Tool Products Co., Chicago, manufacturers of portable sanding machines, announces the appointment of J. M. Warnimont to the position of Assistant Sales and Advertising Manager. For several years Mr. Warnimont has acted as Assistant Sales Manager for the company. His added duties as advertising manager will include the handling of trade paper advertising and direct mail. Further functions of advertising relating to direct distributor selling helps will be handled in the sales promotion department under the management of H. P. Owen. This change will result in a more effective interrelationship between sales, sales promotion and advertising.

For Putting Out Paint, Oil and Solvent Fires

The effectiveness of newly developed fire-fighting equipment was demonstrated recently before naval, military and Government officials when a 93-ft tank of flaming crude oil, which had reached a temperature of over 2000°F., was extinguished in exactly 4 minutes, 2½ seconds. The event took place at the Moorhead tank farm of the Standard Oil Co. of Ohio, near Findlay, Ohio.

This was the largest test fire ever extinguished. The record-breaking result was accomplished by air foam developed by the Pyrene Development Corp., Newark, N. J.

The equipment and compound which made possible the control of fires such as those set at the Moorhead tank farm can be used to protect flammable liquid hazards in many industries.

ZAPON HELPS *get the ice cream to the boys!*

• "G. I. Joe" is having his ice cream delivered right to his personal fox-hole these days . . . and the unit that brings it to him is protected by a Zapon finish!

• When the Army called on the Emery Thompson Machine & Supply Co. to manufacture a portable ice cream unit that could be moved right up to the front lines, this leading ice cream equipment producer called on Zapon for a protective finish. As a result, one of Zapon's tough olive drab finishes is being used on all these machines as illustrated.

• This is just one of the reasons why during this reconversion period you are unable to get all the civilian finishes you need . . . it's another example, too, how Zapon's experience in developing special finishes for war use means *better finishes* for *you* when final victory is won.

ZAPON

ZAPON DIVISION
ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. • Western Sales: No. Chicago, Ill.

SPECIALIZED PRODUCTION FINISHES . . . *Doing Tomorrow's Job Today!*

Materials Supplies Equipment

Spray Booth Compound

The DuBois Co., Cincinnati 3, Ohio, has developed "Klarifiant", a new caustic-free, non-foaming, water-wash compound for wet spray booths.

This material offers a close approach to perfection in the operation of water curtains, by reason of its being more than a deflocculator. In addition to eliminating the accumulation of pigment residues in the hydraulic system, Klarifiant also prevents the precitation of mineral salts present in most water. Thus "lime scale" ceases to be an operating problem, and the entire system continues at top operating efficiency.

Full descriptive literature, operating instructions or arrangements for a demonstration may be obtained by writing Wm. C. Filipp, Industrial Detergents Division.

Sprays Hot Metal

A new sprayer, designed and built to spray low-temperature metals and alloys is announced by Alloy-Sprayer Co., 602 First National Bldg., Ann Arbor, Mich.

This new sprayer, which is being used extensively for production spraying of selenium rectifier cells, rectifier discs, for protective coating of wood patterns, and similar spraying, is expected to be particularly useful in laboratory research work due to the close control of the characteristics of the spray.

Range of operation is 100° to 600° F. Metal or alloy in almost any form is melted in the pot preparatory to spraying by means of thermostatically controlled electrical elements. Operating air pressures are from 20 to 60 lbs. per square inch, depending on the needs of the work.

Installation of the new equipment is merely a matter of suspending the sprayer by a chain or wire, connecting into the factory air line (or bottled air or nitrogen) and plugging in the electric cord which is furnished with the sprayer.

Spraying is accomplished by grasping the handle and pressing the lever. A smaller auxiliary control is easily moved by the thumb to change from fine, to coarse, to the pour stages of spray.

Protective Skin Creams

A Massachusetts manufacturer, who has been a pioneer in the field of specialized skin protective preparations for industrial plants, offers two new products which he calls "invisible work gloves". This concern has been especially successful in over-coming skin irritation difficulties of factory workers in contact with cutting and cooling oils which contain sulphur, chlorine and other irritants.

In addition to the endorsement of safety engineers and plant physicians, it has been found that workers (both men and women),

Dependability plus-

YARNALL

INDUSTRIAL FINISHES

have that PLUS factor because — in the making it's a "must" with Yarnall that provision be made for accomplishing *more* than minimum requirements. They never fail *because*, they have — *"Something to spare."*

who think of their personal appearance, use these creams for protection against ordinary grime and grease.

Two types of hand creams are available in standard packages. One, which is water-soluble, protects against dirt and irritation from coal-tar derivatives, petroleum products, esters, hydro-carbons, and many other chemicals. The other forms a remarkable water-repellent film which is so effective that it need be applied only once or twice a day. It not only actually waterproofs the skin, and protects it against acids and alkalis, but also aids in restoring chapped or irritated skin to normal condition.

This manufacturer sells his products with a definite money back guarantee; and invites correspondence with plants where conditions conductive to dermatitis exist, with a view to submitting samples for test. Write Cadet Laboratories, Worcester 5, Mass.

Finish Protects Galvanizing from Corrosion

Greater resistance to white corrosion for galvanized products is now made possible through the special development of "Iridite Galvon" by Rheem Research Products, Inc., Baltimore 2, Md.

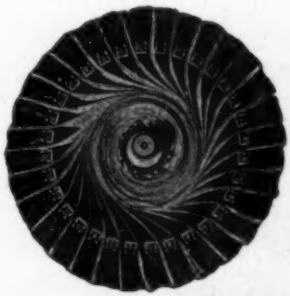
Like its predecessor, "Iridite Olive Drab" for zinc and cadmium plated parts, "Iridite Galvon" is applied by simple dipping at normal room temperatures. No special equipment or personnel are needed; no electric current is used in the process. The basic coating is susceptible to various dye colors.

Accelerated corrosion tests, conducted by the company under U. S. Bureau of Standards Salt Spray Specifications, indicated no signs of white corrosion products on hot dip galvanized panels after 236 hours.

Iridite Galvon can be applied either to complete assemblies, parts, or to galvanized sheet previous to fabrication.

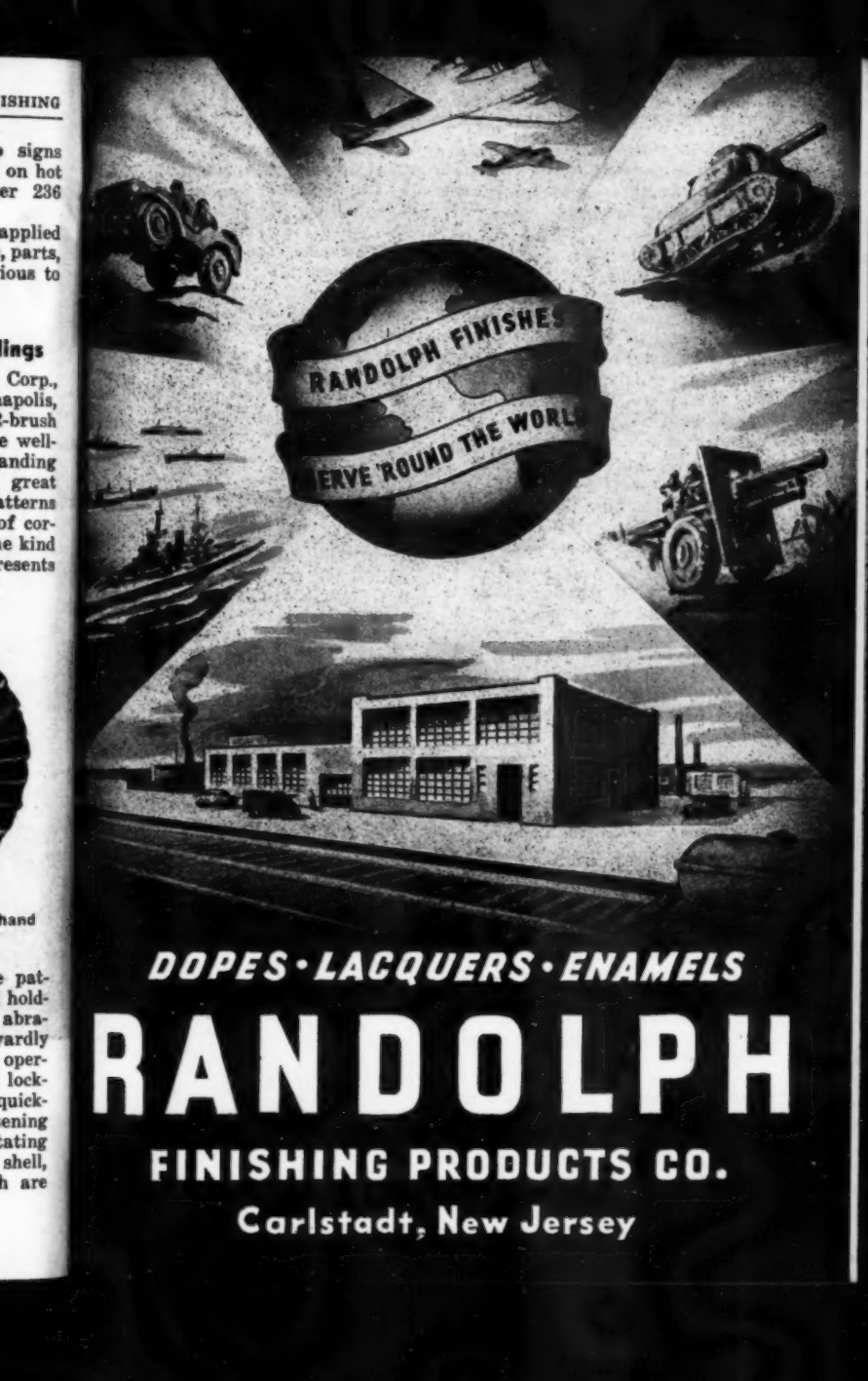
Sands Carvings, Mouldings

The Vonnegut Moulder Corp., 1800 Madison Ave., Indianapolis, Ind., announces a new 32-brush sander head, superseding the well-known 8-brush head for sanding carvings, mouldings and a great variety of the types of patterns which involve combinations of corners and curved surfaces—the kind of work that generally presents difficult sanding problems.



This equipment can eliminate hand sanding of irregular shapes.

The primary parts of the patented head are an outer shell holding 32 strands of shredded abrasive cloth which extend outwardly between the brushes. During operation, the shell and spool are locked together, but they can be quickly unlocked by simply loosening the spindle nut. Then, by rotating the spool in relation to the shell, the strands of abrasive cloth are



DOPES • LACQUERS • ENAMELS

RANDOLPH

FINISHING PRODUCTS CO.

Carlstadt, New Jersey

drawn into the head by winding them upon the spool until the outer ends of the abrasive strips extend only slightly beyond the outer ends of the brushes.

Under pressure of a work-piece held against the revolving head, the yielding action of the brushes automatically causes the abrasive to conform with irregularly shaped surfaces and forces the shredded abrasive ends into depressions of the work-piece, thus doing in seconds what might require many minutes of hand sanding.

When the abrasive ends become worn, new cutting surfaces are presented by unlocking the head, turning the sleeve to uncoil the abrasive cloth a fractional part of an inch and relocking the head.

As a rule, the sander head is used on a horizontal spindle, and Vonnegut equipment includes a narrow type 1-hp. unit, and a wide type 2-hp. spindle stand specially designed for operation of the Vonnegut brush-backed sander head.

"Traversite" for Water-Wash Spray Booths

"Traversite" is the name of a white granulated crystaline powder of high concentration, designed specifically for the treatment of water in water-wash spray booths. It is quickly and completely soluble in cold solution; causes no heavy residue to settle to the bottom of the tank; produces sufficient alkalinity to properly "wet out" the various pigments, oils, resins, etc.

This compound is composed entirely of active ingredients that have been carefully blended with advanced type wetting agents, thus providing maximum wetting qualities. It is so balanced as to provide a colloidal action of various types of paint pigments.

Fire hazards, due to pigments collecting in the exhaust stacks, are reduced to a negligible minimum because "Traversite" speedily "wets out" all the pigment immediately upon contact. Its effectiveness does not rely on caustics, therefore, it does not irritate hands and skin of workers constantly in contact with the solution. Thorough wetting action eliminates the possibility of clogging of the lines and prevents adherence of deposits on the metal back curtain, as well as corrosion of metal surfaces. Low concentrations have unusually long and effective life. "Traversite" is a product of The Penetone Co., Tenafly, N. J.

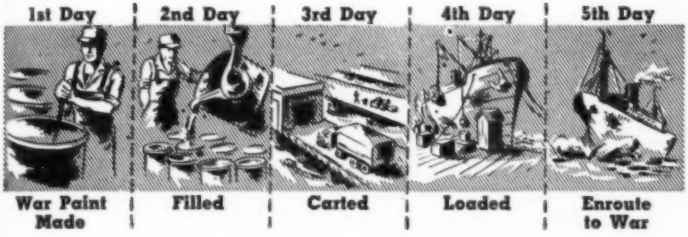
Portable Infra-Red Baking Units

In response to an ever increasing demand from industry and service shops for mobile infra-red equipment, to handle multiple baking, drying, dehydrating and preheating operations, The Fostoria Pressed Steel Corp., Fostoria, Ohio, has designed a complete new line of portable models.

The complete group of four models provides radiation coverage ranging from 275-sq. in. on the smallest to 2000-sq. in. on the largest. The reflector assemblies

Speed . . . and Up to Spec!

or How we at Hilo Have Been Working for the War Effort . . .



Back of our reputation for delivering the correct goods is a record of good performance. Shipments like these cited above were made frequently—by Government order, before inspection. And . . . every lot up to specification, as proved on test!

This is the kind of Hilo service users of specialized production finishes had come to count on in the old days. We hope to restore it to you soon . . . just as fast as the raw materials which are still critical become available.

Meanwhile, we can make prompt delivery of Hilo Black Japans, Crystals, Rip-pls and various other Standard Protective Coatings.

Tell us your needs. We'll give immediate attention to your requirements.

HILO

HILO VARNISH CORP.

42-60 Stewart Avenue **Brooklyn 6, N. Y.**

2420 Washburne Ave., Chicago 8, Illinois
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on all models are attached to the upright support and base by an arm equipped with a rotating swivel device which permits radiation in any direction. All reflector assemblies move up or down on the upright, thus giving complete flexibility. Models utilize either gold plated reflectors or gold reflecting surfaces to gain maximum efficiency from the infra-red energy.

The majority of the models are wired to accommodate lamps ranging from 125w to 500w 120v. Heavy duty casters permit easy rolling. Careful design eliminates possibility of tipping at any position.

New Oily Waste Can Prevents Fire Hazard

The Rochester Can Co., Rochester, N. Y., announces a new and improved type oily waste can for industrial use. Constructed of galvanized steel in accordance with Underwriters Laboratory specifications, the can provides safe, simple storage of oily waste and other inflammable materials.

Provides a safe place for oily rags.

The top is weighted to insure immediate gravity closing, and it fits the can snugly, with no possibility of remaining open. The foot-operated opening mechanism hugs can exterior with no protruding parts to rip or catch clothing.

Newest safety feature is the full-length body which provides a firm stable base that eliminates legs and decreases tipping hazard. Air vents in the body between bottom of the container and the floor allow good air circulation.

The American-Marietta Co. Acquires Canadian Plant

Expansion into Canada by the American-Marietta Co., through the purchase of Ottawa Paint Works, Ltd., was announced recently by Grover M. Hermann, president. The well-known Ottawa company, founded in 1900, has branches in Montreal and Toronto, broad distribution of its dealer line throughout the Dominion, and also manufactures production finishes.

Anticipating a substantial increase in sales in Canada during the postwar period, a program of expansion for the Ottawa company is planned, and the manufacturing facilities will be expanded as soon as permission can be obtained. Ottawa Paint Works, Ltd., will be operated as a fully owned subsidiary of American-Marietta Co. and no changes will be made in policies or personnel.

The acquisition of the Canadian company is in line with the policy of American-Marietta to expand into a nationwide organization. It acquired the Sewall companies in Kansas City and Dallas in 1944 and the Ferbert-Schorndorfer Co. in Cleveland in 1942. The paint factories now operated by American - Marietta Company total seven and current sales are at the rate of $15,000,000 annually.

E. H. Bucy Elected President of N. Y. P. V. & L. Association

Mr. E. H. Bucy was elected president of the New York Paint, Varnish and Lacquer Association at the annual meeting, May 10. He is nationally known to the paint industry, due to his service as chief of the Protective Coatings Section, Chemicals Bureau, WPB, in Washington, 1942-43. Mr. Bucy, now assistant general manager of the Cellulose Products Dept., Zapon Division, Atlas Powder Co., served the New York Association last year as chairman of the Specialized Production Finishes Committee.

QUALALACQ SPECIAL 866

ANOTHER QUALATONE PRODUCT

Qualalacq Special 866 is formulated to yield a high grade wood lacquer of the synthetic type which possesses a marked degree of penetration, smooth flow, accentuation, body, hardness, flexibility, balance, clarity, depth of tone, ease of application, and low cost. Its hardness is such to resist impact, press markings, average heat, water, 120 proof alcohol, and will not scratch white.

Qualalacq Special 866 is a naturally high gloss lacquer, but may be rubbed and polished to any desirable degree of gloss approximately twenty-four hours after the application of the final coat. Specific mention must be made of its excellent rubbing and polishing properties which make this lacquer suitable for high grade piano and cabinet finishing. A higher quality clear gloss wood lacquer is not obtainable at any price.

Write for your copy of "The Finish of your Lacquer Problems"

21 GAY STREET NEW YORK 14, N. Y.

QUALATONE PRODUCTS, INCORPORATED

Thinning Paste Wood Fillers

PASTE wood fillers are important in finishing open-pored woods. The solvent used in reducing the filler to working consistency and the proportions of paste filler and solvent have an important bearing on the working properties and performance of the material.

Paste fillers are designed to be reduced on the job by the user. For brush or dip application, 10 to 14-lbs. of paste are used to each gallon of solvent. For spray application, 6 to 10-lbs. are used. Of course, the type and condition of the wood have a bearing on the reduction that should be used; however, those just recommended are considered to be good practice.

The type of solvent used has an important bearing on the working properties. V M & P naphtha is widely available and is used for reducing fillers. It has a boiling range of roughly 200° to 300° F. However, VM&P naphtha evaporates quite rapidly, and may be too fast in hot weather. The filler may become quite stiff and hard to pack into the pores before the entire case can be wiped.

Another readily available solvent, which is slower, is mineral spirits, or dry-cleaner's solvent, boiling within the range 300° to 400° F. This is an excellent reducer for filler. It permits plenty of wiping time. However, this solvent is usually too slow when used alone, and is generally used in conjunction with VM&P naphtha.

A solvent combination that is too fast will not permit clean easy wiping; it may leave hard-to-remove smudges on the wood. One that is too slow will smear, promote shrinkage, and will tend to pull out of the pores instead of breaking off clean. A properly balanced combination will permit the filler to lose its "shine" quickly and reach the non-smearing, crumbly or mealy condition necessary for proper filling. The film should remain in this condition for 10 to 15 minutes to permit easy wiping and proper cleaning up. Then the filler in the pores should dry as quickly as possible.

Lead-free or "white" gasoline is often used for reducing filler. This is fairly satisfactory, but the more volatile portions of gasoline may cause illness when breathed for long periods; and they certainly increase the fire hazard.

Some finishers use kerosene to slow down the drying of reduced filler. This is fairly satisfactory if it is done with discretion, but there is always danger of leaving "heavy ends" of solvent in the filler in the pores. The filler may swell, or turn the lacquer sealer white over the pores; especially if insufficient time is allowed for the filler to dry. Commercial kerosene often has a "heavy end" which is a greasy non-evaporating residue.

A most dangerous practice, followed by some finishers, is to add a little raw linseed oil to filler to make it wipe easily. This should never be done because it disturbs the critical pigment-vehicle ratio that is so necessary for proper filling. In addition, it retards drying, promotes swelling and lifting by the sealer, and will often cause the sealer to turn gray over the pores. This last phenomenon is known as "turning gray in the pores," and is primarily the result of improper drying of the filler.

Everything considered, mixtures of VM&P naphtha and mineral spirits are most satisfactory for reducing fillers. Satisfactory wip-

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ing can be obtained under different conditions by varying the ratio of one to the other in the solvent balance. For example, in hot summer weather the proportion of mineral spirits may have to be increased to prevent too rapid drying. Conversely, in cold weather the mineral spirits may have to be decreased in order to speed up the setting time.—ROLLIN H. WAMPLER.

Non-Flammable Paint for Ships

PAINT has accomplished one of the biggest single jobs of the war in preventing the destruction of American warships. Early in the war more fighting ships were destroyed by fire than by bombs, shells and torpedoes. Explosives started the fires, but the flames finished the vessels.

Now all has been changed. Gasoline and ammunition still burn, but the insidious fire feeders which so often led to them are gone.

One of the biggest reasons why a steel warship burned was its thick coatings of paint. The flash of exploding enemy missles was hot enough to ignite the paint, which itself spit explosively and kept burning. Bulkhead walls became red hot and ignited the paint on the other side. Sometimes the paint was years thick, maybe as much as ¼-in. thick.

Development of a paint that would not burn was undertaken by the research standards branch of the Bureau of Ships of the Navy. Navy yards, the naval research laboratory and industry cooperated.

Now the Navy has a new partly-synthetic plastic paint, nearly as thick as molasses but capable of spreading thinly, that will not flame. It was made by reducing the amount of combustible materials in the paint, by adding more non-flammable inorganic pigments, and by adding antimony oxide. At first the new plastic paint had to be sprayed on hot. Further improvements produced a paint that can be sprayed cold.

Enough ships were saved by this new paint to equal the losses of several major seafights.

Along with fire-resistant paint, the Navy and industry produced another kind of paint that does not save ships from destruction, but which adds probably 25% to the length of time a warship can be on active duty.

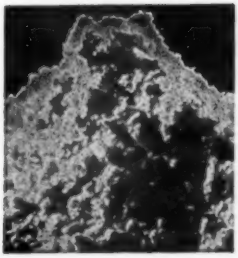
This new paint is a plastic that retards fouling of ships' bottoms. Formerly, the longest a ship could go without bottom painting was about six months; now warships can go for two years as a rule without serious fouling by barnacles.

The bottom paint maintains ship's speeds and maneuverability at higher levels. It also reduces fuel consumption.—SGT. G. TOLES.

Bakelite Announces Changes

Bakelite Corp. (Unit of Union Carbide and Carbon Corp.) New York, N. Y., announces the transfer of Mr. E. L. Metcalf from the St. Louis office to the New York offices at 30 E. 42nd St. Mr. Metcalf will act as Technical Representative on varnish resins. He will cover the New England States and Metropolitan New York. Mr. Metcalf has been associated with Bakelite Corp. for the last five years, in an engineering capacity.

The corporation also announces the appointment of Mr. Frank I. Bennett to the New York offices at 30 E. 42nd St. Mr. Bennett joins the laminating varnish division, thermosetting department, in the capacity of Technical Representative. He has a well-rounded background in laminating materials, and for the last 18 months has been working on the development of special plastic laminates at Bakelite's Development Labs., Bloomfield, N. J.



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Booklets Catalogs Circulars

Instrument Catalog

Instruments (electronic, pneumatic and mechanical) of many kinds and for many purposes, are illustrated and described in "Instrumentation", a 32-page booklet published quarterly by The Brown Instrument Co., Philadelphia 44, Penna.

Consultants, Engineers, Technicians on Finishing Problems

A 4-page folder, outlining the services and facilities of Sam Tour & Co., Inc., metallurgists, engineers and consultants, has just been issued. It contains views of the several laboratories housed in the company's own buildings at 44 Trinity Place, New York 6, N. Y., and lists the nature of assignments undertaken in metallurgical and chemical engineering, metal finishing, corrosion, physical metallurgy and consultations. Copies will be sent free on request.

Hose Nozzles and Guns That Save Air, Water, Etc.

An attractive 22-page booklet on the Lonn rubber blow and spray guns and water savers, used in practically every industry, has just been published by The B. F. Goodrich Co., Akron, Ohio. Copies are available upon request. The company has recently concluded an arrangement by which it distributes the Lonn products, already well known, through its national Industrial Products Sales Division.

The booklet explains the principle of Lonn valves which have only three working parts and which give constant fingertip control of air or water under pressure without the use of levers, springs, push buttons, packings or screws. Elimination of small parts, the booklet explains, reduces repair and replacement problems and results in low maintenance cost.

Most interesting features of the booket are charts which show the cost of air or water delivered through various sized orifices when uncontrolled. When the Lonn gun is used, tremendous savings are accomplished.

Each of the Lonn guns is pictured in the booklet, its applications outlined, and other pertinent details given. Attachments, among them the spray-gun conversion unit, are also described.

Abrasive Blast Cleaning Without Compressed Air

A new 24-page catalog, published by American Foundry Equipment Co., Mishawaka, Ind., answers every question about the Wheelabrator — the simple mechanical unit that utilizes controlled centrifugal force, instead of compressed air, for abrasive blasting.

This booklet is the first concise presentation of all phases of airless blast cleaning in the metal working field; consequently, it is of value to all plants in which blast cleaning is an important part of their production. Ask for catalog No. 74.

Stripper Again Available

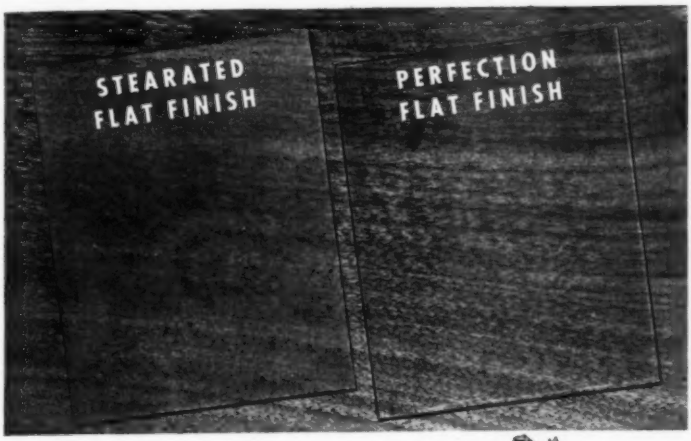
"We are again in a position to supply industrial plants with our product '70 Stripper.' This product has not been available to industrial plants during the war, as our entire production was being used by the Army and Navy.

"'70 Stripper' is an exceptionally effective chemical compound which will strip baked japans, lacquers, enamels, hard carbon, and other foreign matter off all types of metals, including the white metals, with no harmful effects on even the soft alloys.

"A printed folder describes and tells how it is used."—E. A. Gerlach Co., Philadelphia 40, Penna.

Triple-Duty Sanitation Material

A basically new chemical development simultaneously performing the functions of deordorizing, cleaning and disinfecting in one operation, is announced by Oakite Products, Inc., 32F Thames St., New York 6, N. Y. The material, Oakite "Tri-San," is a white powder, dissolved in water, which forms a clear, odorless solution. Ap-



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Indianapolis 2, Indiana

plication to surfaces is made in the same manner as any cleaning agent. It is designed for simplifying plant hygiene procedures through its triple-duty properties, and has a wide application in industrial plants, particularly where odor control is a recurring problem. A 20-page descriptive booklet is available on request.

Chemical Formulary Volume VII Ready

The most complete collection of chemical formulas, including a 30-page section on textiles and fibers, is offered in The Chemical Formulary, Vol. VII, recently published. Chapter XX contains seventy-five new formulas for the textile and fiber field, representing years of research by the country's foremost chemists. Edited by Harry Bennett, holder of eleven chemical patents, the book is unique as a collection.

A new volume of The Chemical Formulary is issued every two years, but each volume is different and can be used separately. Directions are simple and direct, and amounts can be increased or decreased easily. There is an index giving names and addresses of mail order firms handling ingredients needed.

Vol. VII of The Chemical Formulary can be obtained through INDUSTRIAL FINISHING Magazine. The price, $6.00.

Amateur Decorator Booklet Free

Peter Hunt, wonder-worker with the paint brush, has again drawn on his lively imagination to guide homemakers in rejuvenating old furniture and shabby rooms. In the third "Transformagic" booklet, just announced by the Finishes Division of the Du Pont Company, he introduces new ideas in floor and wall transformations, emphasizing that this new-from-old method of getting beauty into the home is not for furniture alone. The booklet is issued to Du Pont paint dealers for distribution to their customers.

The new booklet contains more types of early American decorations than previous issues, including motifs from the romantic Southwest, blending Spanish and Indian arts.

Almost all Peter Hunt designs are composed of variations of a simple basic stroke. "Learn it," says the master, "and you can paint flowers, fruit, vegetables, trees, people and all the related motifs." Progressive steps for making the designs are shown in color. Much of their charm lies in their inexactness. Readers are advised: "Express your personality and paint the things you like the way you like them instead of aiming for perfect copies."

Step-by-step instructions are given for antiquing, surface preparation, and applying paint. There is advice, too, on materials needed. In fact, the whole presentation is a comprehensive lesson in both the practical and artistic phases of "Transformagic," stimulating to the hobbyist and an eye-opener to the uninitiated.

Rheem Research Products, Inc. Changes Street Address

Rheem Research Products, Inc., Baltimore, Md., announces removal of its general offices from 2523 Pennsylvania Ave. to St. Paul & Franklin Sts., Baltimore 2, Md. However, the the manufacturing operations remain at the former address.

Kidde Pressure Switch

The Kidde pressure switch is an accessory device designed for use with built-in carbon dioxide fire extinguishing systems. It assists in isolating the fire by automatically cutting off electrical circuits in fans, blowers or other electrical equipment when the extinguishing system operates. It is a self-contained, mercury contact-type switch suitable for applications which employ gas or air pressure. For additional information, write Walter Kidde & Co., Inc., 140 Cedar St., New York 6, N. Y.

61 Years A Finisher

Frank A. Thiel, Sr., a finisher and finishing superintendent associated with The American Furniture and Batesville Cabinet Companies, Batesville, Ind., for a continuous period of 61 years, was given a big testimonial dinner at the time of his retirement in May of this year.

When only 14 years old he started to work as a filler at $1.50 per week of 65 hours. At the age of 27 he was appointed superintendent of the finishing departments, and continued in that capacity for the next 46 years. During this time he conducted a complete laboratory and brought out many beautiful finishes for furniture.

In his entire 61 years of continuous service, Mr. Thiel missed only two weeks and two days on account of illness.

Mr. Thiel is the father of nine children. Three of his sons hold important positions with nationally known paint and finishing companies.

White at its Brightest

Reflectance Value 88%

High gloss plus marproof surface makes this synthetic white enamel a favored finish for maximum reflectance. It has excellent adhesion to metals, simulated tile, plastics such as Bakelite and other surfaces where a hard marproof finish is essential. The enamel hides completely in one coat, and requires baking for 20 minutes at 275° or 10 minutes at 300° F. It is a highly desirable finish for lighting fixtures, refrigerators, novelties, radiator covers, hospital furniture and operating equipment.

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Editorial

Made-to-Order Finishes

Emphasizing the value of made-to-order finishes to suit the requirements of various products, particularly in regard to the handling, service and exposure to which they are likely to be subjected, one manufacturer calls attention to some of the testing equipment used in his laboratory. Quoting from his illustrated bulletin:

"Imagine how a made-to-order suit would fit if the tailor guessed at your measurements.

"In making technical finishes for many products of industry, we measure the requirements and fit the finish to the needs. There are no seams to be let out in a finish. It must fit when delivered.

"We have various testing devices that assist our technical staff in determining what constitutes a good fit. Bumps under slow pressure, dents under shock impact, abrasion resistance, film thickness, hot and cold water resistance, hardness, viscosity of liquids, and many other physical characteristics are accurately measured, not guessed at.

"Additional equipment includes a salt spray cabinet, sweat box, photo-electric meter to measure gloss, and a bend-tester that forms a panel over a hard steel cone. These and many other ways and means are used to advantage in the laboratory.

"We would be handicapped without this equipment as would the tailor without a tape measure. The right tools, skillfully used, can help guide a concern toward producing a superlative product. Of course, the equipment itself is of no real importance except as we are able to apply it in perfecting finishes for your use.

"So, aside from observing and recording results obtained with these tools, the most important factor, is the intelligent evaluation of the facts that are so determined, and their application to the solution of formulation problems. When you apply a finish to your new product, you should be certain that it is fitted to your exact needs."

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Planning New Products and New Production

★ Twenty years from now, some enterprising journalist will come across a stack of old magazines published in 1945. Examining our now-current ideas about the postwar world, he will have all the material needed for an interesting article, pointing out the things that never came to pass in strict accordance with the predictions, as well as obvious ones we all overlooked.

This being the case, why use up scarce paper to write about such matters, and scarcer time to read about them? Specifically, what does the executive or foreman in the finishing department gain by following this line of thought, when possibly 20% of these outpourings of the imagination will get as far as the drawing boards, and only 10% will ever see a production line?

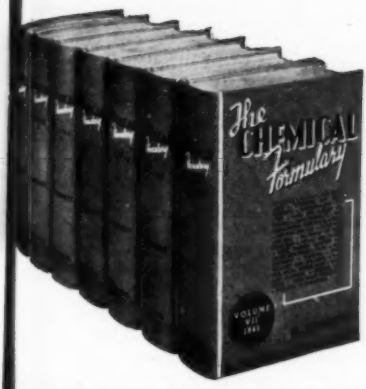
The answer is not increased knowledge for the industrial finisher so much as its *stimulation of his ability for original thinking.* If he studies a proposed idea and says "tommyrot," he still has opened his mind to fresh notions. Later, he may see how the plan could be improved and made more practical. Then we have progress, and no one knows where the new trend of thought may lead.

The executive and foreman are highly important in our industrial setup, for quite clearly there is no sense in manufacturing what people will not buy and use. I have a friend who once invented what he believed was a clever device. But it failed to impress people who were supposed to spend money for it. If he ever has another idea like that, he knows from experience the big question is, "What will the prospective customer think, and how will he react?" Perhaps a lot of the postwar planning now underway has as its most serious purpose the drawing out of opinions and suggestions. As the purchaser does the investing, trying to shape postwar production to please him surely needs no apology as a sensible course of action.

As I see it, many virtues exist in the present system. The more bad spots eliminated in advance of actual production, the less time required to reach perfection. Changes can be made a lot more quickly and inexpensively on the drawing board than on the production line. It puts a curb on the tendency to waste materials and manpower by doing as much perfecting as possible in the planning stages. Not all the "bugs" can be removed on the drawing board, but industry is learning that many of them are quite discernible there, for whoever takes the time and effort to look for them.

Furthermore, manufacturers are more willing to change and improve their ideas while it can still be done with a pencil and eraser. When manufacturing equipment and procedures have been set up, it becomes a costly matter to alter them. Naturally, it can seldom be done for small improvements. So if we enter the postwar period with a host of good ideas advanced as far as they can be taken on the drawing boards and in the conference rooms, then we are just that much closer to perfection without waste of the three essentials

★ Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.



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Farm & Garden	Ceramics	Liquors	Beverages	Metals
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INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

a thrifty nation should always conserve—time, manpower, materials.

The American mind is best stimulated by constructive matters. In time of war, less is effort available in this direction. Postwar planning, in spite of its guesswork and occasional absurdities, meets a definite need today. It keeps the mind awake and developing. When it is not actual progress in itself, it at least leads to advances in many directions. It aids in maintaining a high level of thinking, planning, looking for a better way.

For these reasons, postwar planning should be taken seriously by everyone; and particularly by the executive or foreman in the finishing field, where the promise of the future shines so brightly.—G. M. DODSON.

War Work Really Taught Us Things

★ I feel certain that the majority of small industrial concerns now occupied with Government contracts, executing their work under the watchful and critical eyes of Government inspectors, will have learned many valuable lessons which will have an important and favorable bearing on their postwar work.

Systematic and modern methods of material and product handling, product fabricating, and product finishing, have necessarily replaced old fashioned manual practices in use before the war. New ideas, fostered by the essential quick changes in contract schedules, from one product to another, will prove expedient in the major problem of meeting keen business competition in our postwar world.

A few of the important lessons, in relation to the finishing industry, to which we will attach greater significance in our postwar work, are as follows: We will place a determined emphasis on the proper cleaning and preparation of metal surfaces before the application of paint coatings. We have learned the importance of this basic operation—many times by hard experience—and will apply to our future finishing problems, the knowledge gained from our experiences.

We will also use greater care in the choice and selection of finishing material, using only high quality products and establishing close cooperation between our finishing department and the suppliers of the products. By so doing we will combine the technical knowledge of the laboratory with our practical experience, in the choice and use of the proper coatings, on our various types of products.

Closer attention will be given to detail, such as getting a clear and concise picture of the customer's specifications for his product, and following them religiously. A close and accurate check on all operations by the department foreman, together with intelligent and systematic company inspection, will eliminate many costly mistakes before they have a start.

Maintenance of finishing equipment is another item which will receive careful attention, as we have discovered—also by some hard experience—that only by painstaking and systematic cleaning and maintenance methods on the spray guns, tanks, booths, etc., can satisfactory and successful work be accomplished.

Only because of the strict specifications controlling Government work have many of these lessons been impressed deeply upon us, but I am sure that in future work we will all realize and appreciate the

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RADIO INDUSTRY, ETC.
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INSTRUMENT BOXES,

THE ROAD TO TOKYO

OUR MILITARY AND NAVAL leaders in the Pacific predict that the Road to Tokyo will be a long hard battle. The fighting on Okinawa is an example of the fanatical resistance we can expect before our fighting men take Tokyo.

The movement of vast forces and huge quantities of equipment to the Pacific fighting fronts will require our best efforts. All of us on the home front must keep our shoulders to the wheel until the Road to Tokyo has been secured.

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

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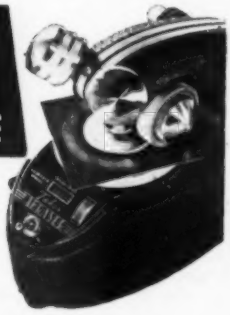

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value of what we thought at times was unnecessary red tape.—DALE W. MUSSELMAN.

Construction Boom . . . More Inflation

Many concerns and individuals who are planning on putting up one or more new buildings as soon as materials, supplies and labor are or seem to be available, might do well to pause and consider the proposed step. Is that proposed new building absolutely necessary in the immediate future?

The present high cost and difficulty of obtaining materials, transportation, labor of all kinds, and equipment to put in new buildings, is such that to launch a general construction boom soon would almost certainly produce, in certain localities, dangerous inflation and probably frequent strikes and expensive delays.

Experienced and well-informed men in the construction industry are very much concerned about the situation. They are apprehensive as to whether the industry can get past the early revival period without a disastrous inflation of construction costs; whether the industry can progressively broaden its market by reducing costs after the period of inflation dangers is passed; and whether the industry and those related influences which create construction demand can successfully control the boom.

Construction costs, in March 1945, averaged 28% to 30% above the year 1939. Both material prices and wages are likely to rise further after ceilings are lifted, along with prices of many other commodities, and the threat of more inflation will then be much greater than it has been during the war.

The Road Ahead—As these lines are written, *Time* sums up the outlook for reconversion as seen in Washington. There may be 3,000,000 tons of steel available for civilian production in the first three months, enough to make a considerable quantity of consumers' goods.

Tight controls will continue on other metal products, such as copper. The easing of some controls does not mean that all shortages will end miraculously. The enormous supply problems inherent in the Pacific conflict will inevitably mean that such materials as textiles, lumber and leather will continue to feel the pinch for many months.

* * *

Good Times Ahead—Despite the warnings of numerous gloomy prophets, the staid American Bankers Association takes a rosy view of postwar business prospects. The May issue of *Banking* offers a number of convincing reasons for hope and confidence.

Anxiety over the size of our national debt is vanishing, and fear of depression has been dissipated, declares this authoritative journal. In addition, it cites these heartening factors: A "good neighbor" atmosphere among all elements of our population prevails; new and improved producing and distributing techniques are in the making;

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isolationism is dead; and finally, planned saving has received an enormous impetus.

* * *

Eternal Paint?—The Russians, who are devoting an enormous staff of scientists to industrial research, recently startled our American technicians by announcing that their Prof. Stepan Tumanoff has finally perfected an everlasting paint. The formula of this modern miracle has not been divulged.

A clue to the possible basis of this mysterious composition is found in the disclosure that the professor has long devoted himself to a study of rubies, sapphires and amethysts. The New York *Times*, speculating on this fascinating news item, points out that all three materials are forms of corundum, a widespread mineral.

We are free to assume, therefore, that Tumanoff's paint includes corundum in some form. The Russian statement disclosed that the coating will withstand enormous extremes of heat and cold.

* * *

Preserving Plywood—Ray Arndt of the U. S. Plywood Corp. passes along some reflections on the proper finishing of interior plywoods. The present tendency, he declares, is to avoid the heavy "veneer" of a coat of shellac and several coats of varnish that were formerly employed. All woods can now be finished in "natural", he explains, and modern bleaches are available for use where lighter-than-natural effects are desired.

Open-pored woods like oak, mahogany and walnut can be given a "light pore" effect by filling with special white wood filler before applying the finish. If plywoods of the Douglas fir type are to be painted, he advises, they should first be given a coat of synthetic resin to prevent the grain from showing through.

* * *

Expansion in Research — It has been widely assumed that the war-stimulated upsurge in industrial research is due for a sharp curtailment with the end of hostilities. But reassuring news on this point comes to us from a responsible source.

The National Research Council's Office of Scientific Personnel has been querying a cross-section of the country's laboratories. Almost without exception, they plan to expand their activities instead of tapering off. Some of our most important organizations report that they hope to *double* or *triple* their postwar staffs of trained technicians.

* * *

Eyes on China—Many American business men, contemplating the great pile of rubble that once was Europe, are turning their thoughts to the commercial possibilities in the Far East. An up-to-date report on such prospects was delivered in Manhattan recently by Dr. K. C. Sun of the Chinese Government's National Resources Committee.

According to this official, the war which has brought destruction to his country's coastal industries has also opened up the interior to modern technology. Important new industries, said Dr. Sun, include the exploitation and refining of petroleum, development of the alcohol industry, electrolysis of copper and zinc, and the manufacture of generators, gas turbines and engines.

* * *

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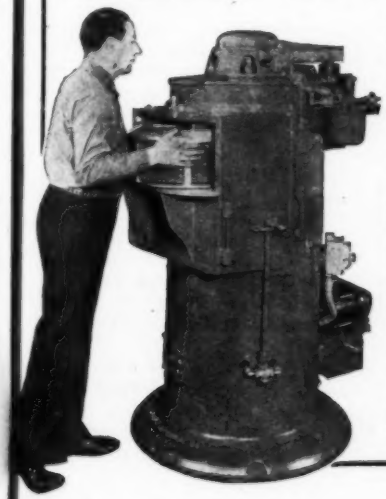

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troit motor-makers, says Bert Pierce, well-known Manhattan auto editor. Although the Automotive Council of War Production has set the start of volume manufacture about five months after the go-ahead signal, some production may be under way before that time.

Ford, for example, is understood to be prepared to put cars on the assembly lines from 60 to 90 days after the official signal is flashed. This company's so-called "Postwar Car No. 1" will have the same general exterior appearance of the late 1942 models, but shou'd include a number of improvements in mechanical design, with emphasis on some of the newer alloys and metals.

* * *

Boom In Housing—All competent observers agree that the building industry is due for a period of great expansion. A few weeks ago, Philip M. Klutznick, commissioner of the Federal Public Housing Authority, made a forecast of the prospects in some detail. During the first decade after the war, he declares, the nation will need at least 1,250,000 new homes each year.

Klutznick points out that numerous polls have placed housing for low-income families at or near the top of the list of community postwar needs. Adding certain private estimates to current proposals for urban redevelopment, he says, will involve 12 to 15 billion dollars worth of land acquisition.

* * *

FM Is Ready—Ira Hirschmann, vice president of Metropolitan Television, Inc., anticipates a boom in frequency-modulated radio sets in the years immediately ahead. This will mark the second important phase in radio's development since the 1920's, he points out. The third stage, of course, is expected to be television.

FM sets will be coming off the production lines in a few months, according to Hirschmann. Combination FM-AM sets should be on sale before the end of the year for retail prices beginning at $60.

* * *

New Textiles Coming—New processes evolved in the United States in textile research will soon put us far ahead of the rest of the world, says John T. O'Connor, of the International Electronics Laboratories. The most revolutionary fabrics will be those manufactured with non-weaving techniques. Both electronics and the development of thermoplastics, he claims, will play an important role in the perfection of such fabrics of the future.

* * *

No Serious Competition—Answering the repeated charge that the oil industry is intruding in the field of chemical production, H. W. Fisher, of the Standard Oil Co. of New Jersey, points out that there is little basis for alarm. "If a 55-gallon drum represented petroleum production," he states, "less than a gallon can would represent the industry's production of chemicals from petroleum bases."

The oil industry, Fischer emphasizes, r e m a i n s essentially a mineral industry dealing in tremendous volumes. Current production of all American units approximates 750,000 tons a day. To underscore that fact, one might remember that the figure cited just about equals the whole of last year's output of synthetic rubber.

* * *

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to manufacturers of other types of packaging. In addition to planning the resumption of beer-can making, they expect to once again supply their products for oil, paints and many food products.

However, a number of can manufacturers have hedged their bets by branching out into the paper container field. Most of them appear determined to hold this newfound business. One important development of recent years which should continue to grow in public acceptance is the fiber container for milk, chemicals and other packaged goods.

* * *

For Visitors—Readers of INDUSTRIAL FINISHING may obtain free tickets to many leading radio programs on request. When planning a visit to Manhattan, drop a line to: *Lawrence H. Singer, 130 West 86th Street, New York 24, New York.*

Among the cooperating sponsors are: Helbros Watch Co. ("Quick As A Flash"); The Texas Company ("Texaco Star Theatre"); and Pharmaco Inc. ("Double or Nothing.")

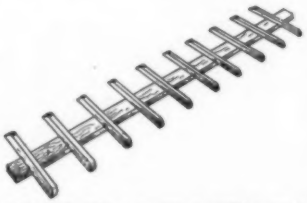
Finishing Short Narrow Strips

AMONG THE difficult problems that a fast production finisher must face, one is the handling and finishing of small parts, particularly light-weight oblong pieces that easily upset by the force of air when being spray-painted.

Tumbling, of course, is the approved method for finishing knobs, small handles, etc., but often when there is only a small amount of this work to be done, it does not warrant purchasing tumbling equipment — yet the difficulties of coating small oblong pieces on three sides have to be met.

I found that the following procedure works very well for small oblong strips, such as Navy-communication cabinet-grille strips, which are very light and which have to be coated on three sides.

The walnut strips are first dipped in filler, and wiped clean after allowing the filler to dry a few minutes. After final drying for



Sketch showing narrow grille strips laid in position on base board.

three hours in a drykiln (or an overnight air drying) the pieces are dipped in 10% solids lacquer sealer, reduced only 10% with thinner. It is important to note here that the sealer is reduced only slightly.

Use the lacquer sealer as heavy as possible, thinning it just enough to prevent fatty edges; then allow it to drain for a few seconds, and place the dipped pieces one by one on base boards of soft wood of either pine, poplar or other absorbant crating lumber. Space the grille strips about 2-in. apart to allow for final spraying operations (see sketch).

After a base board has received the maximum number of dipped strips, set the load aside to dry for two hours in a drykiln. The soft wood base will absorb the sealer just enough to provide a firm bond to the walnut grille strips and still not leave any heavy beads.

After the sealer has dried, the

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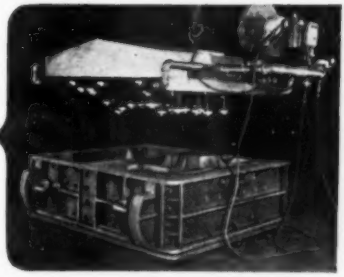

Hardly short of a miracle—yet, here is the photographic proof showing the portable Burdett "Infra-Red" unit that dries large sand molds to a depth of ½" in 15 minutes. In paint drying—production is increased 300% at 25% to 40% saving in fuel. Ask for complete details.

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grille strips will be temporarily stuck to the base board. This is just what you want; leave them that way. Lightly sand the lacquer sealer coat with No. 7/0 sandpaper, on the three sides of each grille strip, being careful to avoid knocking any strips loose from the base board. Then dust the sanded surfaces with an air gun and spray two coats of clear gloss lacquer on the three sides of each grille strip.

These final operations are all done while the grille strips are still attached to the base board by adhesion of the sealer. After the lacquered strips have been rubbed and cleaned, they can be easily removed from the base by lifting gently on each end.

This method of temporarily holding the grille strips firmly on a base board has proved to be faster and more efficient than to try using sharp-pointed spurs or small nails.

The success of the method outlined here is assured if the sealer is thinned properly and if the base boards are of soft absorbent wood. The width of the base board should not be more than one fourth the length of the grille strips to be painted or finished. In other words, if the length of the grilles is 10-in., it is advisable to use base boards that are about 2½-in. wide. Then they will provide adequate adhesion without sticking the grille strips too firmly to be removed aft-

er the finishing is completed.

The procedure herein outlined can also be used for pieces that are to be painted or enameled, providing lacquer sealer is used as the first coat.—NORMAN H. VOIGT.

Protection from Skin Irritants

SEVENTY-FIVE percent of all occupational diseases among workers are the result of skin ailments. Thousands of industrial workers are exposed to dermatitis-causing organic solvents widely used in the production of war materials. To safeguard the health of workers and to eliminate industrial dermatitis, protective measures are absolutely essential. The basic principle is to separate the irritant from the employee. Prevention is the only sure means of stamping out dermatitis.

Somehow we think of dermatitis as a disagreeable and inconvenient disease, but not a serious or preventable one. There we are wrong. It is serious. It can kill and kill quickly. Even a mild case lowers the body's resistance, inviting infection.

Dermatitis can be eliminated. A

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The appointment of George A. Litchfield to the American-Marietta Co.'s industrial finishes sales staff is announced. For 10 years Mr. Litchfield was with Jones-Dabney Co.—the past year as vice-president and director of sales. His headquarters will be in Chicago.

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comprehensive safety program can assure the healthful existence of workers, even those who daily handle the most toxic of solvents. The program lies in the field of preventive medicine, with protective clothing the best means of preventing dermatitis. The first rule in all plants should be that no worker is permitted to handle oils and solvents without protective garments.

Degreasing solvents, lacquers, paints, and thinners are potential dangers to some workers who must handle them. Even workers who at first seem immune, develop a susceptibility after continued exposure to or contact with these liquids.

For each worker, the safety program should start the first day he reports on the job. Before being assigned to work involving the handling of oils and solvents, he should be warned of their possible danger and should be given allergy tests to determine his susceptibility to them. His placement and the safety measures instituted for his protection should rest on the results of these tests.

Next he should be told, and if possible provided with, the protection the job requires. If his work entails frequent handling of irritants, a protective cream will not suffice. What he needs is protective clothing that covers all parts of the body likely to come in contact with the irritants.

In the past workers have raised three objections to a program of wearing protective clothing: The expense involved, if the plant does not furnish the clothing; the weight of protective garments; and their cumbersomeness. Faced with the figures on the incidence of dermatitis among war workers, the first objection is quickly overcome. Other difficulties are now overcome

REGOLAC

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by the new compar clothing which weighs only a few ounces and affords great freedom of movement, as well as a long service life which cuts down on the cost of protection.

Compar clothing is fabricated from a rubber-like transparent substance compounded of coal, limestone and air. It is entirely impervious to oil and all organic solvents and to many that are inorganic. It has been fashioned into gloves and aprons, smocks, sleeveguards, caps and tie-arounds for the head by its developer, Resistoflex Corp., Belleville, N. J.

If only the hands need protection, compar gloves with curved fingers provide complete protection and facility in handling small objects. Aprons made of the cellophane-clear compar are useful for protecting clothing where it may rub against work benches. If full protection is needed, the worker can be clothed from head to foot in this light-weight vinyl resin substance which is tough, resistant to abrasion and completely immune to all oils and solvents throughout a long service life. There is no danger, as with some safety clothing, that a change in the oil or solvent handled may leave the worker unprotected or may damage the protective clothing.

In addition to the instruction on protective clothing, the worker should be impressed with the importance of body hygiene. Before leaving the plant, work clothing should be removed, taking care to step out of garments in such a way that any irritant on them does not come in contact with the skin. If by any chance clothes have become soaked, they should be laundered before re-wearing. If the skin has come in contact with an irritant, thorough cleansing is necessary before leaving the plant.

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the worker must be impressed with the importance of wearing his protective clothing while he is on the job; he must be taught to clean and care for it. He must realize that deviations from this practice are infractions of company rules set up for his protection. Rigid adherence to these protective measures is a small price to pay for the continued health of factory workers.—C. MCCOMBER.

Hydrofluoric acid is one acid that will attack ordinary glass, but the American Optical Co. has developed a new glass which satisfactorily resists attack by hydrofluoric acid. It is based on phosphorus pentoxide instead of silica, and was developed specifically to resist hydrofluoric acid which is now encountered increasingly in laboratories and plants.

Modern fire protection for industrial plants, businesses and institutions is based on the military principle of providing a series of increasingly powerful defense lines, which can be brought to bear in succession against the enemy with a minimum loss of time.

Andrew X. Lauchaire Joins N. Y. Woodfinishers' Co.

The New York Woodfinishers' Supply Co., Inc., announces the appointment of Andrew X. Lauchaire to its sales force. Mr. Lauchaire will cover Metropolitan New York where he is widely known to furniture manufacturers; he will also service the New England territory. He will sell the complete New Period line of lacquers, varnishes, synthetic enamels, fillers, and stains for wood and metal finishing.

Andrew Lauchaire started his career in this industry in 1922 with a well known manufacturer of finishing materials in Brooklyn, N. Y. He was sales manager of another New York finishing materials concern before making his present connection.

Classified Advertising

Rate: 50 cents per line per insertion—minimum $1.50

SITUATION OPEN.

Permanent position for Plater to control and take charge of Department: Brass, Nickel and Copper—Hardware—Located in Virginia; must have experience and references, married man, around 35 years, prefer Southern Man. Address IF-197, care Industrial Finishing.

"COME TO TEXAS"

Finishing Foreman Wanted. Small established Store Fixture manufacturer wants sober, reliable, working foreman finisher experienced in formulating and applying modern lacquer finishes on casework and furniture. Good working conditions. Give all information first letter. Address IF-198, care Industrial Finishing.

FOREMAN WANTED.

Foreman experienced in plating and finishing jewelry and novelties. Permanent position with well-known firm in New York Metropolitan area. Address IF-204, care Industrial Finishing.

PAINT SALESMAN WANTED.

Midwestern area. Must have good following. Excellent income to right applicant. Good character. Experience essential. Correspondence held in confidence. Address IF-201, care Industrial Finishing.

WANTED INDUSTRIAL REPRESENTATIVE IN CONN.

Preferably a man now located in Connecticut with broad experience and contacts. Our Company has an excellent background in the Industrial field manufacturing practically all types of finishes. The right man will have an excellent opportunity for developing a real income. All replies will be kept confidential. Address IF-203, care Industrial Finishing.

SALESMAN WANTED.

Manufacturer of quality lacquer and furniture finishes has openings for several salesmen in northern Indiana, northern Illinois, Wisconsin, Minnesota, Michigan, Iowa, Ohio, south and southeastern states. Men with established following considered first. Applicants give full particulars of territory desired, experience, age and other pertinent information. Address IF-192, care Industrial Finishing.

PAINT CHEMIST.

Young man 33 to 38 years old, chemistry degree. Must have big paint company experience in research and development of paints and pigments. Will supervise small staff. Nationally known company located in Middlewest. Salary: $4,000 to $5,000. Excellent opportunity. Address IF-202, care Industrial Finishing.

FOR SALE.

Complete DeVilbiss spray equipment including compressor, 4-ft. spray booth, exhaust, etc.

One 8" Kent Laboratory stone mill water cooled.

One electric oven 18"x18".

One Hot lacquer heater and other lacquer laboratory equipment.

Address IF-205, care Industrial Finishing.

SPRAY EQUIPMENT SALESMAN

Manufacturer of manual and automatic spray equipment, established over 25 years, wants a man to take over the Pittsburgh territory.

Excellent opportunity, now and postwar, for a man who knows application of finishing materials and maintenance painting.

Must be able to discuss problems intelligently with customers and prospects. Some traveling.

State age, experience, salary expected and any other pertinent details, so that interview can be arranged immediately if qualifications meet requirements.

SANGER-FUNNELL, INC., Industrial Advertising, 60 East 42nd Street, New York 17, N. Y.

NATIONAL PAINT DICTIONARY

Second Edition

$7.50

The second edition of The National Paint Dictionary by Jeffrey R. Stewart is more than a dictionary; it is really a one-volume encyclopedia of illustrated information conveniently arranged alphabetically and attractively presented in 224 pages 9x12-in. It contains approximately 200 illustrations and charts; includes definitions of trade names and raw materials used in the paint and allied industries; has charts, tables, useful information and miscellaneous data; describes all of the important testing devices and apparatus used in the laboratory; is strictly technical, thoroughly authentic and completely unbiased.

The author, Jeffrey R. Stewart, F. A. I. C., is editor and publisher of the National Paint Bulletin. He was formerly associated as research chemist with Dr. Henry A. Gardner of the National Paint, Varnish & Lacquer Association.

The heavy green covers are attractively embossed and have raised gold letters on a panel of red. The price of this elaborate volume, which looks like $15.00, is only $7.50.

★

INDUSTRIAL FINISHING

1142 N. Meridian St., Indianapolis, Ind.

POSITION DESIRED

By finishing foreman with proven experiences in finishing wood cabinets, furniture and metal parts. Address IF-200, care Industrial Finishing.

POSITION WANTED

By man 41 years old, with 20 years' experience in all phases of the Paint Industry, both industrial and dealer. Have a proven record in sales work, as technical director and plant manager. Desire position which will utilize this all-round knowledge to best advantage. Am capable, efficient and have the experience to manage completely any paint company. Address IF-199, care Industrial Finishing.

FINISHING FOREMAN WANTED.

Experienced in volume production especially applying to enameled wood cabinets. Capable of handling labor. By a progressive and established manufacturer of kitchen cabinets in Georgia. Address IF-195, care Industrial Finishing.

FINISHING FOREMAN

With proven experience in finishing wood cabinets wanted by woodworking company in the East. Good opportunity with definite possibilities of postwar future. WMC clearance from local USES office required. Those now engaged in essential activity should not apply. Address IF-196, care Industrial Finishing.

WANTED TO PURCHASE.

Oil or electrically heated continuous type baking oven, suitable Japan work up to sheets 36"x36". Address PHILLIPS & BUTTORFF MFG. CO., Nashville 3, Tenn.

FORBES BAKING PRIMER

100 — 55-gal. drums Forbes Dark Grey Baking Primer @ 40c.
In excellent condition. All or part. No priorities required. RAND CHEMICAL PRODUCTS CO., 2335 So. Mich. Ave., Chicago 16. Phone CALumet 2866-67.

FOR SALE.

13 — 55-gallon drums — Phenolic Varnish Jones-Dabney specification AXS-736 at $.95 gallon.
30 — 55-gallon drums — Gray Lustreless Lacquer—WD-21—Zapon—at $.80 gallon.
All in excellent condition, all or part F. O. B. New York. COMMERCIAL SALES CO., 410 Long Beach Rd., Oceanside, N. Y.—Tel. Rockville Centre—590.

NOW'S THE TIME FOR *Your* BIG "MOP-UP"!

RE-SOLICITATION is the keynote for this "mop up"! Bond rallies plus continuous competition help keep Bond subscriptions on a quota-topping climb. Poster displays, showings of the Treasury film, and distribution of the War Finance booklet and handy Bond-holding envelopes play an important part. But, above all else, see that every employee is asked *once more*—and urged *once more*—to meet his personal quota in the Mighty 7th!

The Payroll Savings Plan is the mainstay of every War Loan —your plant quota is vital to the success of the 7th! Remember, we have to make two drives in 1945 do the work of three last year. Put on a "mop up" final to help mop up the Japs, cut the tentacles of inflation—and help build postwar security!

THE MIGHTY 7th WAR LOAN

The Treasury Department acknowledges with appreciation the publication of this message by

INDUSTRIAL FINISHING

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and War Advertising Council

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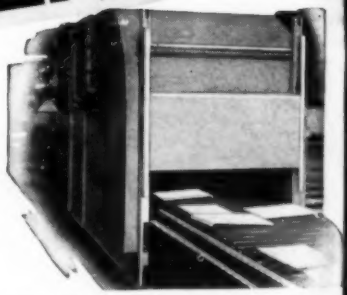
ONE COAT FINISH

APPLY ANY TWO-COLOR SPATTER FINISH IN ONE OPERATION!

MARTIN VARNISH COMPANY

900 W. 49TH PLACE · CHICAGO 9, ILLINOIS

WAR PRODUCTION *has brought* BIG IMPROVEMENTS *in* INDUSTRIAL OVENS

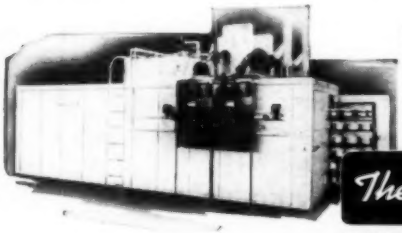


Advanced TECHNIQUES UTILIZED *by* KIRK & BLUM ENGINEERS *in* DESIGNING PRODUCT FINISHING *Equipment*

Ever on the alert for better, faster methods of product finishing, high-speed war production has served as an immense stimulus to advancement in oven design and drying and baking techniques.

Kirk & Blum "Oven Engineers" have long specialized in the oven field. The members of our Staff are thoroughly abreast—in many ways ahead—of the times. Their thoroughgoing knowledge of up-to-the-minute oven technology speaks for itself in modern, greatly improved industrial ovens and dryers, planned, designed, and installed by Kirk & Blum in leading manufacturing plants throughout the nation.

Whatever the nature of your particular product finishing operation, you will find it definitely to your advantage to obtain the expert advice and counsel of Kirk & Blum Engineers. Their years of specialized experience in this field are your solid assurance of top oven and dryer performance and economy.



SEND FOR BOOKLETS

- Industrial Ovens
- Fan Systems for Various Industries
- Blower Systems for Woodworking Plants
- Dust Collecting Systems in Metal Industries
- Cooling Systems for the Glass Industry
- Data on Kirk & Blum Production Facilities

The KIRK & BLUM *Mfg.* Co.

2831 SPRING GROVE *Ave.* CINCINNATI 25, OHIO